ENGINEERING NEWS-RECORD

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Complex bridges help tie major road loop *p.34*

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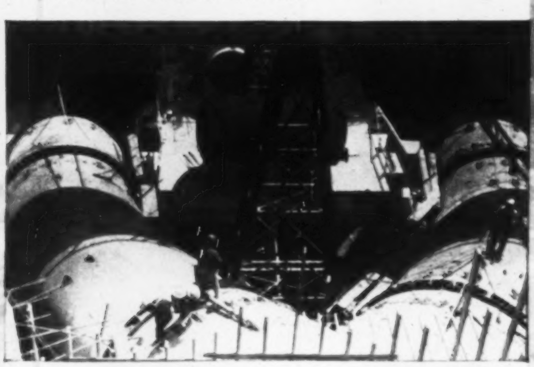
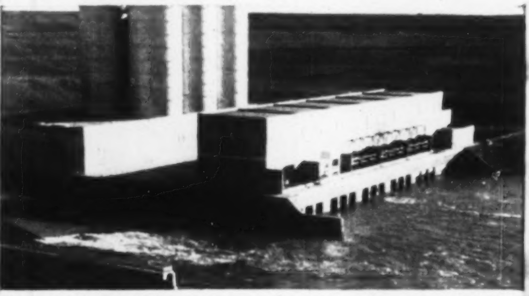


Wye at Blakely Mountain Dam connects CB&I built power conduit, two penstocks and 149-foot high surge tank.



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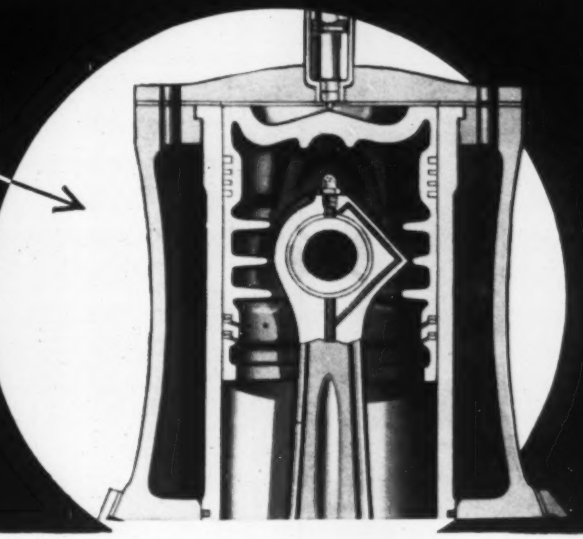

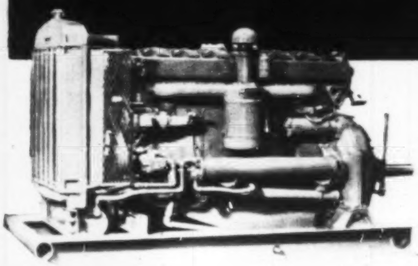

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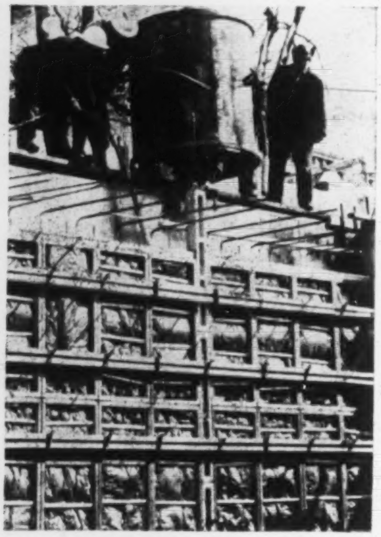

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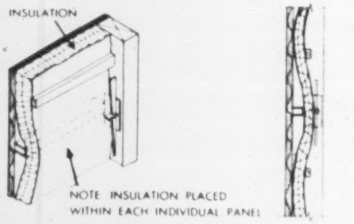

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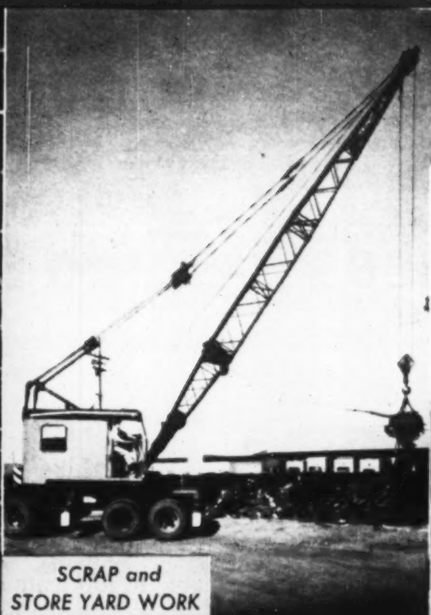

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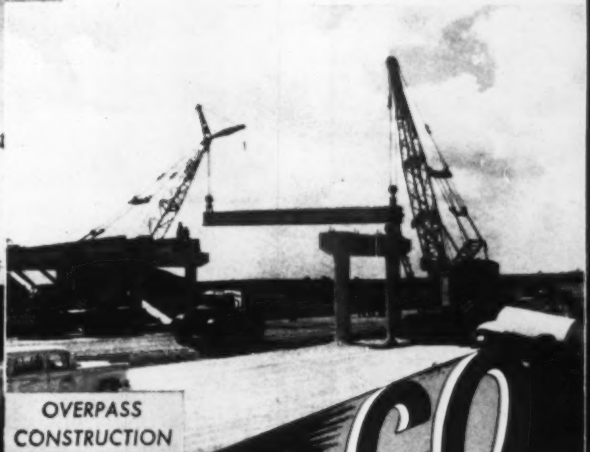

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Western uses Texaco Lube Plan

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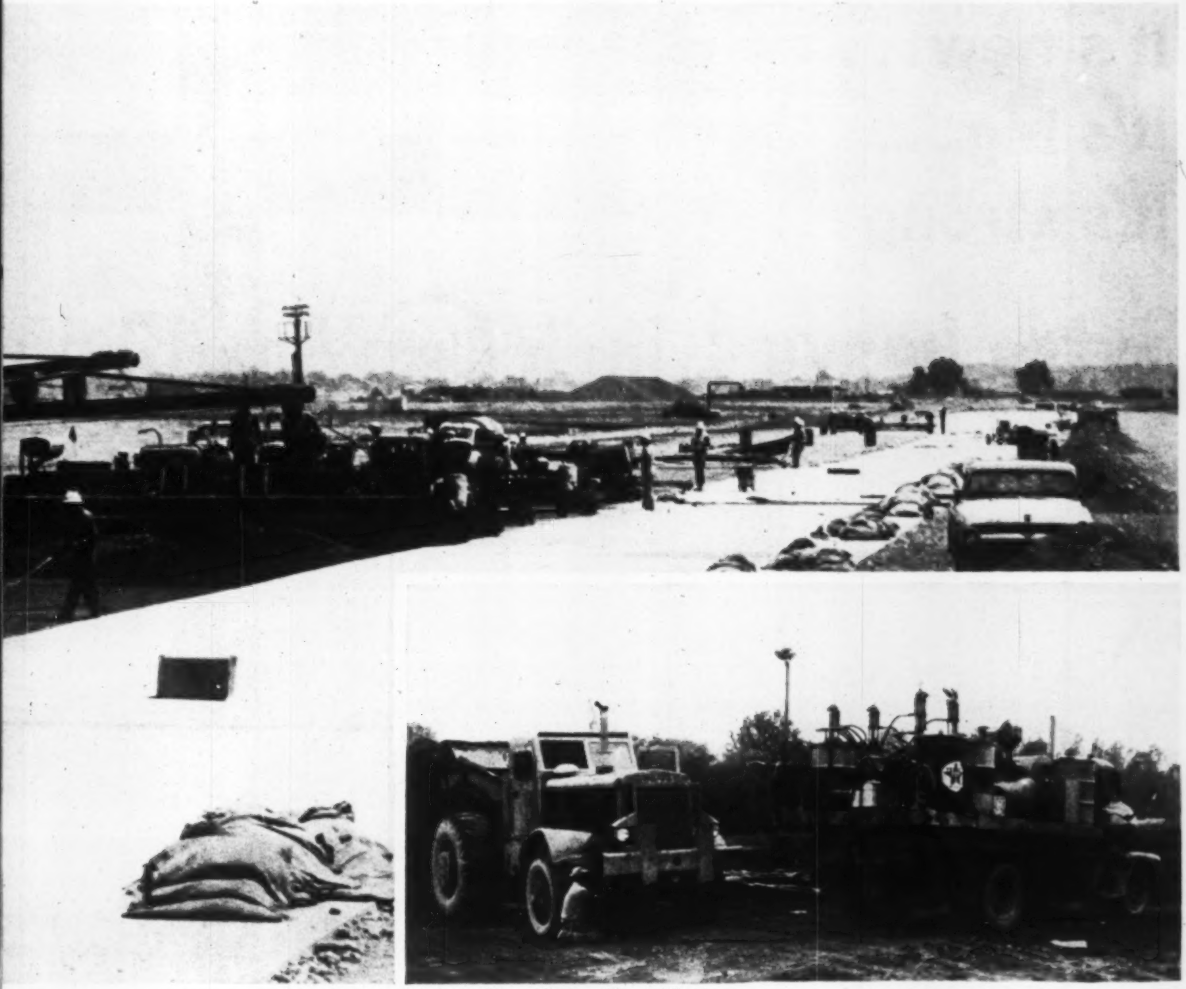

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1. American Welded Wire Fabric is produced from cold-drawn high tensile steel wire. This wire is carefully produced to conform to the requirements of ASTM Specification A82-58T. The minimum tensile strength is 75,000 psi and the minimum yield point, as defined in this specification, is 80% of the tensile or 60,000 psi. Actually, cold-drawn steel wire has no yield point in the conventional sense—no sudden excessive elongation. This means that cold-drawn wire tends to resist stress practically throughout its entire strength range without revealing any sudden elongation such as develops in a typical hot-rolled bar. This physical advantage of cold-drawn wire makes it the ideal concrete reinforcement.

2. American Welded Wire Fabric is completely machine prefabricated by electrically welding all wire intersections. The strength of these welds conforms to ASTM Specification A185-58T which requires that the minimum average shear value of the weld in pounds shall not be less than 35,000 multiplied by the area of the longitudinal wire. This high-strength connection assures positive "mechanical anchorage" in the concrete. In fact, laboratory tests reported in the ACI Proceedings, Vol. 48, April, 1952, show that this anchorage is so good that fantastically high bond stress values from 1000 psi to 2700 psi are computed using conventional bond stress theory!

3. American Welded Wire Fabric is prefabricated with greater accuracy than can normally be relied upon in field work. The wires may not vary more than ¼″ center-to-center than the specified spacing. This assures correct placement and distribution of the steel. Also, the wires are drawn to the very close tolerance of 0.003″.

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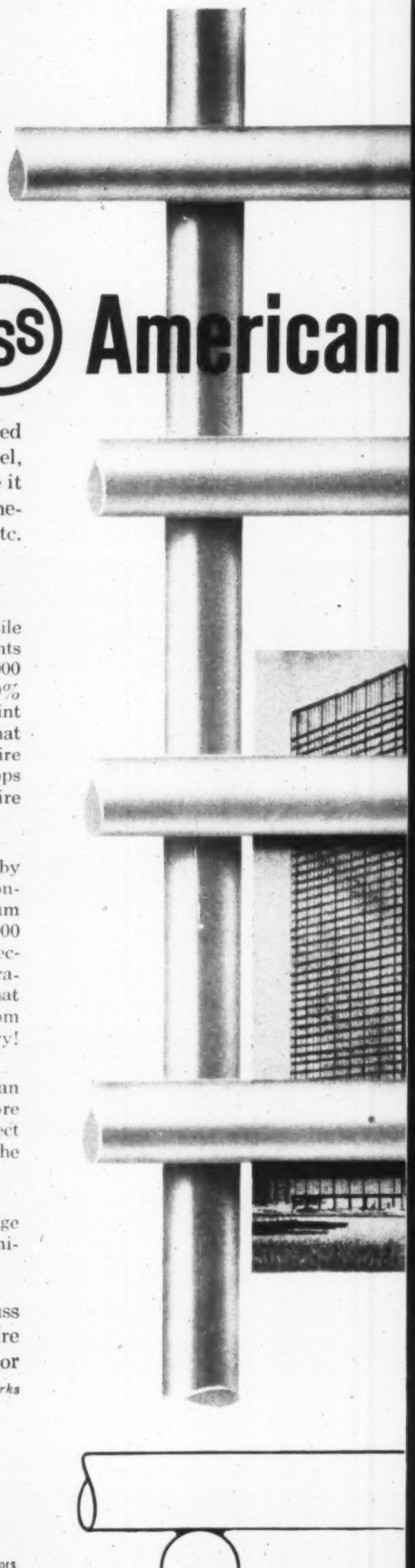
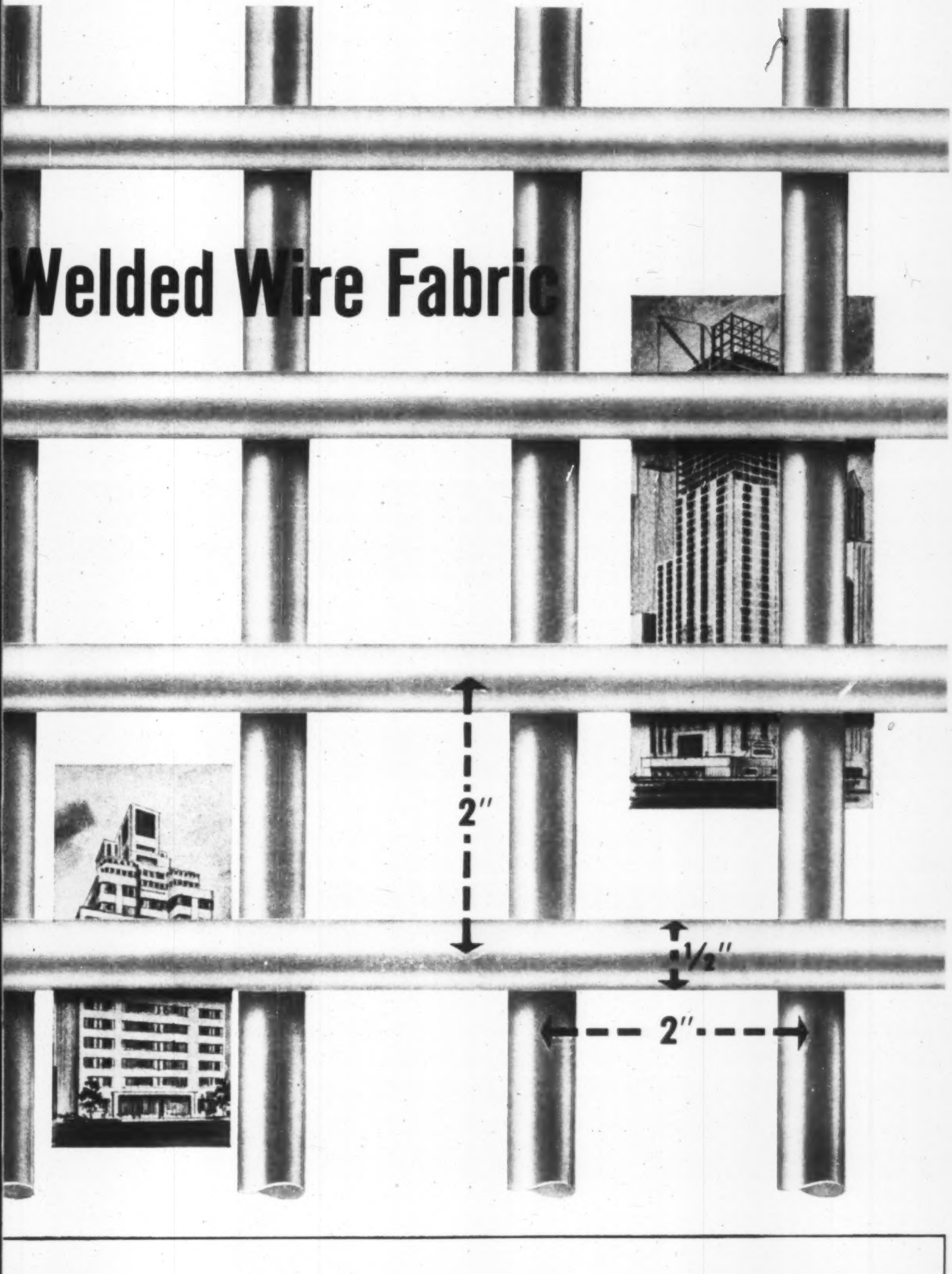


Welded Wire Fabric



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Reader Comment

Impact Loads in Helistop Design

SIR—In discussing the dynamic aspects of helistop design (ENR Oct. 1, p. 23), George E. Brandow states that impact loads are not critical. Inasmuch as theoretical or experimental evidence is not given by Mr. Brandow, a criticism of this opinion is not out of place.

The point of argument is the drop of the skid type of helicopter upon the landing platform. A permissible drop is not yet established, but it is the opinion of experts in the field it should be no greater than 8 inches. This amount being fixed, the helistop can be designed according to the laws of mechanics without recourse being taken to the mystic impact factors.

According to the known theory of Cox, an English investigator, the stresses in a beam, caused by the drop of a load P′, can be determined by statics, if the reduction factor of

$$e = \frac{P'}{p + P'} \qquad (1)$$

is used. This is because a portion only of the energy of the falling body is consumed in the deformation of the beam. In this equation p is one-half of the weight of beam. Experience shows that Eq (1) gives somewhat high values. The proper value for this factor will be 0.75-0.80.

Using the static load

$$P = eP'$$

the structure can be analyzed by means of the principle of virtual work.

When a load P is acting on the middle of the span of a freely supported beam we have

$$M = \frac{PL}{4} \; ; \; s = \frac{M}{I} d$$

or

$$P = \frac{4Is}{Ld} \qquad (2)$$

where I=moment of inertia, d=one half of the depth of beam, L=its span and s=the stress in the beam.

Using Eq (2) the expression for the internal work will be

$$W = \frac{1}{2} Pa^2 = \frac{1}{2}\left(4\frac{Is}{Ld}\right)^2 \frac{L^3}{48EI}$$

$$= \frac{1}{6}\left(\frac{s}{d}\right)^2 \frac{L}{E}$$

where a=the deflection of the beam caused by a unit load and E=the modulus of elasticity of the material.

For equilibrium the internal work must be equal to the external work produced by the falling body, or

$$\frac{IL}{6E}\left(\frac{s}{d}\right)^2 = P(h + a) \qquad (3)$$

where h=the height of the drop. Here, a=the deflection caused by unit load being small, compared with h, can be neglected.

When a beam is selected, this fundamental expression Eq (3) has two unknowns. By assuming the drop the stresses in the beam can be determined or, by specifying the stresses the maximum drop, compatible with this strength of material, can be ascertained.

In order to illustrate the method, an 8 I 23 beam with an 18.5-ft span, taken from an actual project, is selected. The weight of the skid type helicopter was assumed 2,900 lb without reduction, but 50% of this load was added to it as an impact. Under these assumptions the stresses in the beam were 19,400 psi.

Applying the above theory to this case, the following assumptions were made. The helicopter load or 3000 lb was reduced to 0.80x3000=2400 lb. Then an allowable stress of 20,000 psi produced a drop of 1.67 in., while a drop of 6 in. caused a stress in the beam of 49,200 psi—a value beyond permissible limits. These results show clearly the futility of introducing the notion of impact factor in problems of this nature.

The above theory is based upon generally recognized principles of mechanics and is not new. The writer believes, however, that such methods of stress analysis should become the basis of design of helicopter landing pads on the roof of office buildings.

A. FLORIS
Los Angeles, Calif.

Editor's Note: Mr. Floris in his criticism of the statement attributed to Mr. Brandow overlooked the later explanation, which said, "Normal roof deck design can resist these impact shear stresses." And by "these" Mr. Brandow referred to an impact load of 1.5 times the weight of a skid-type helicopter and 0.75 times the weight of a wheel-type helicopter. And he was referring to a concrete roof deck designed for 100 psf live load. Actually, other speakers at the helicopter conference reported on extensive tests by the National Advisory Council on Aeronautics and others which indicate these impact loadings are conservative

(Reader Comment continued p. 12)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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Road Lug—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

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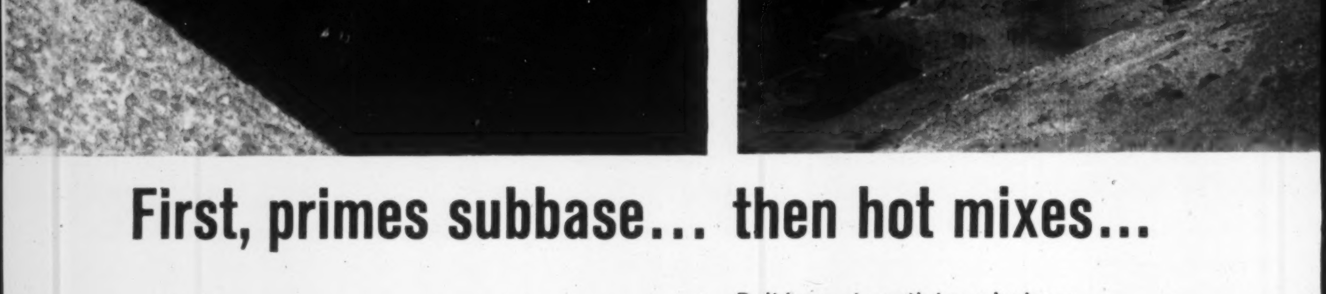
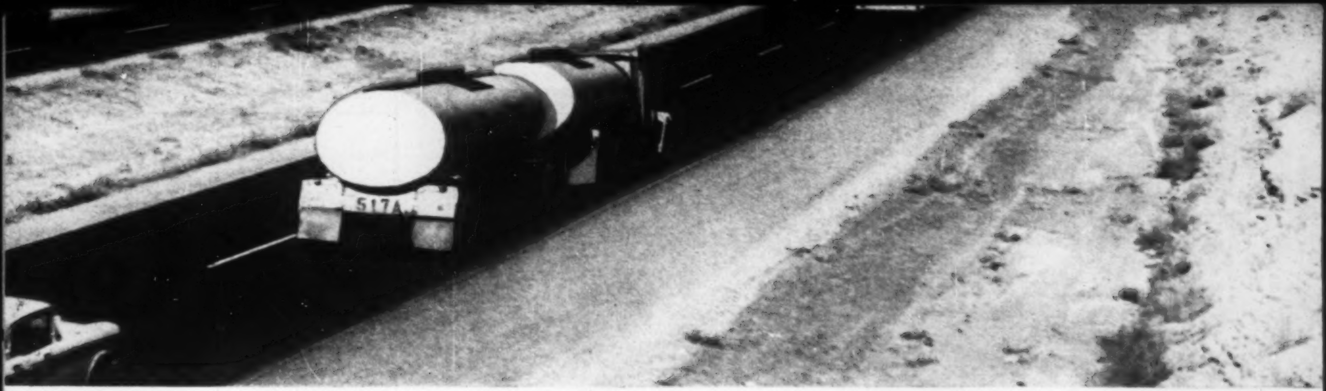
Then four 2-inch courses of hot-mixed sand-Asphalt base (Hveem stability, 26-27) were laid.

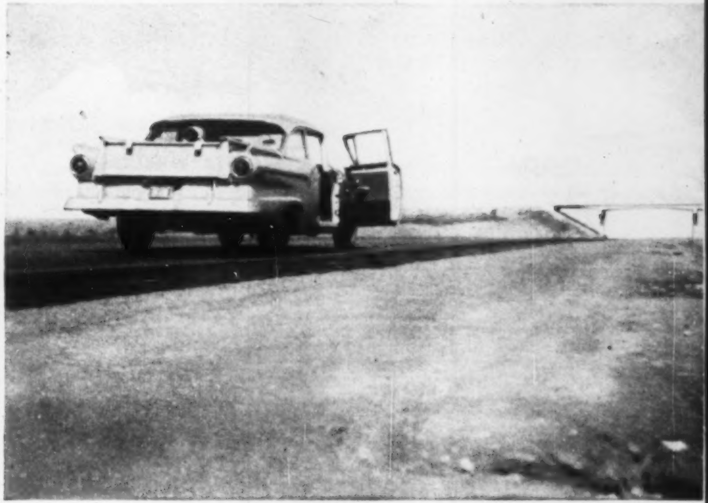
After tacking the base with diluted Asphalt emulsion,



59.0' initial roadbed
38.0' finished roadbed
24.0' Asphalt concrete
4.0'
1.6'
10.6'
4.0'
10.0'
3.3½
Dbl. Asphalt surface treatment
½" per ft.
13½
Sand-Asphalt base course
Tack coat to here
1½" type "C" agg.
3" type "A" agg.
Slope 3/16" per ft.
Tack coat
Dbl. Asphalt surface treat
24"
Appx. 6:1
7
8
13½
14
Tack coat to here
Sand-Asphalt base course
Subbase
4" top soil & fertilizer
Slope 3/16" per ft.



can carry heaviest traffic for years!



and hot lays... 8-inch Asphalt base

two courses (4½ inches total) of Asphalt Concrete were placed to form the traffic lanes. The shoulders were built up with 7 inches of sand-Asphalt base course and given a double surface treatment to provide clear visible demarcation.

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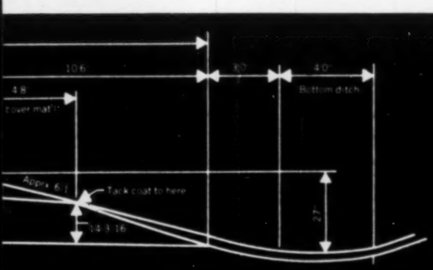

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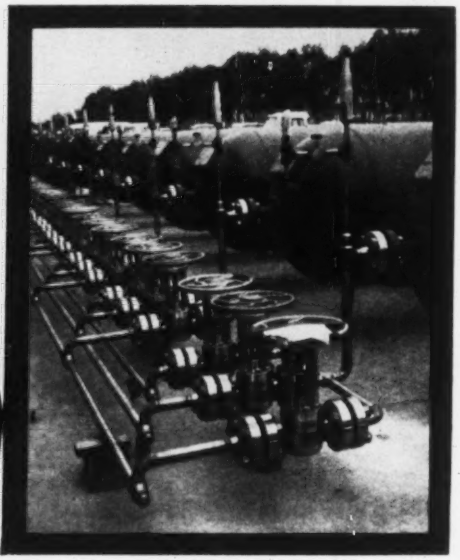

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Slabs Trouble Here, Too

Sir—Mr. Ytterberg's letter implies that frequently there are difficulties with concrete floors in this country, as well as that experienced in Moscow (ENR Oct. 15, p. 14).

That has been borne out by a survey appearing in Architectural Record of January and May, 1958, in which a questionnaire was sent out to various industrial plants on this very question. This questionnaire was evaluated by the writer. The results indicated that, of the plants replying, 61 percent had difficulties with industrial floor slabs.

Jack L. Staunton
Consulting Engineer
New York, N. Y.

Design Acknowledgement

Sir—With reference to the article on the San Francisco Giants' Baseball Stadium (ENR Oct. 1, p. 24), we would like to make this acknowledgement:

While our firm was the structural engineer for the project, the unique post-tensioning design for the concrete frames and walls was developed with the consultation of T. Y. Lin & Associates of Los Angeles, California.

An unusual utilization of the transverse component of the cables enabled the substitution of three tons of prestressing steel for eight tons of structural steel otherwise required for each section.

P. Q. Chin
Chin & Hensolt, Inc.
Consulting Engineer
San Francisco, Calif.

Kudos From Kaiser

Sir—Thank you for the excellent comprehensive story in your Labor department (ENR Nov. 5, p. 105) on the new Kaiser approach to collective bargaining.

As well as anything I have read, it shows a complete understanding of our motivation in reaching this agreement, and of our hopes for what it can accomplish.

Edgar F. Kaiser
Kaiser Industries Corp.
Oakland, Calif.

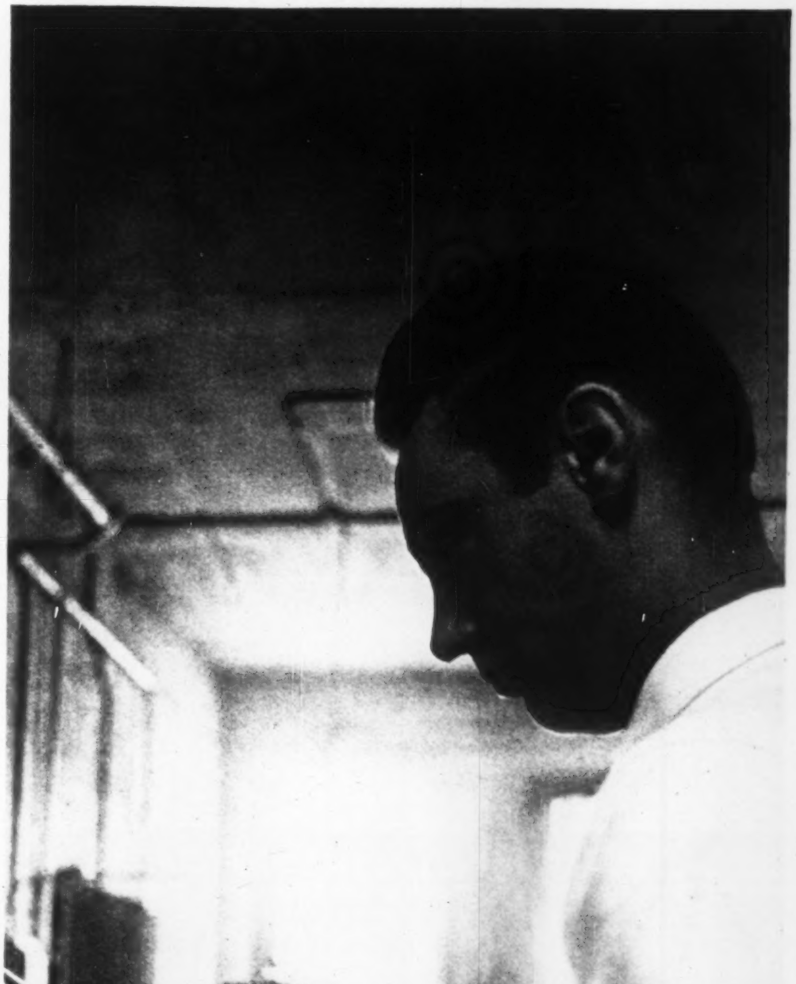
Right Dam, Wrong Owner

In the Federal Power Commission story (ENR Oct. 22, p. 44), we identified Saluda Dam as belonging to Duke Power Co. The owner is actually South Carolina Electric & Gas Co.

For Your Calendar . . .

American Institute of Steel Construction, annual meeting, Boca Raton Club, Boca Raton, Fla., Nov. 30-Dec. 3. Write: L. A. Post, AISC, 101 Park Ave., New York 17, N. Y.

Paper and Paperboard Industrial Waste Conference, Edgewater Beach Hotel, Chicago, Ill., Dec. 1-2. Write: Russell L. Winget, Executive Secretary, National Council for Stream Improvement, Inc., 271 Madison Ave., New York 16, N. Y.



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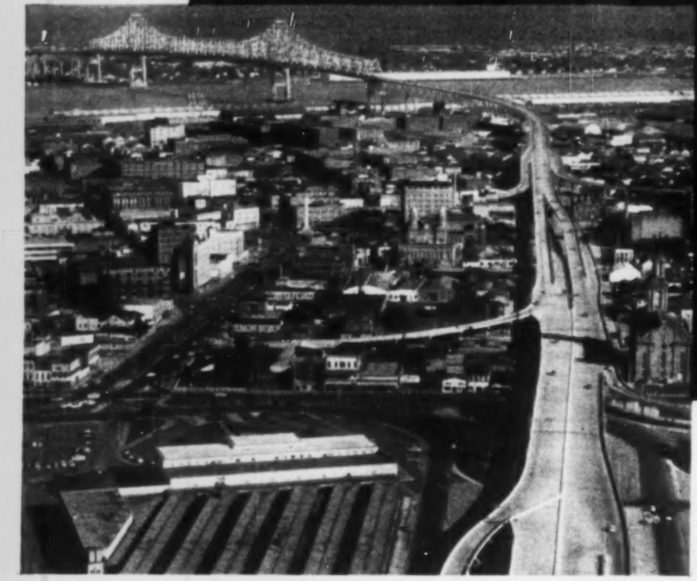
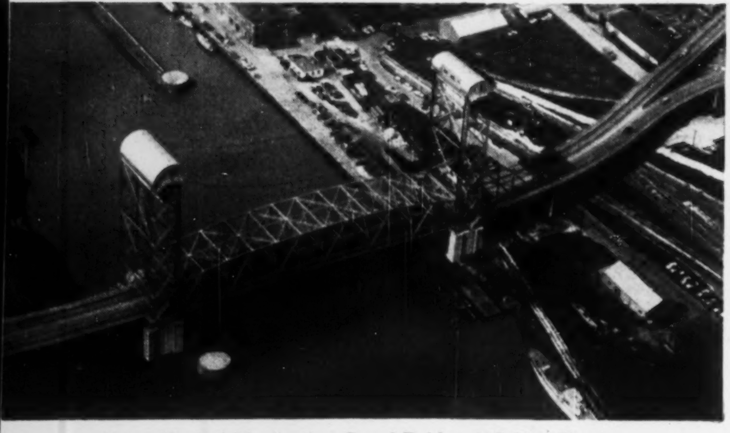
Pas Manchac Bridge. 111 Prestressed Cylinder Piles. Client and Engineers: the Louisiana Department of Highways.



Mississippi River Bridge Approaches. 6,357 Step Taper Piles. Client: Louisiana Department of Highways. Engineers: D. W. Godat & Assoc.; Hardesty & Hanover; Tippetts-Abbett-McCarthy-Stratton.



Inner Harbor Navigation Canal Bridge. 547 Step Taper Piles. Client and Engineers: La. Dept. of Highways.

Bayou Boeff Bridge. 491 Step Taper Piles. Client and Engineers: Louisiana Department of Highways.

Bridge Design Engineer (except for Pontchartrain Causeway
J. B. Carter, now Assistant Chief Engineer for the Departmen

Causeway Blvd. Interchange. 3,808 Step Taper Piles. Client: Louisiana Dept. of Highways. Engineers: Palmer & Baker.

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For a look at progressive highway planning, take a tour of Louisiana. New bridges, causeways, overpasses, interchanges and superhighways are helping make the Creole state a delight to visit–and to live in. As in many other areas, Raymond has worked closely with the various highway agencies in handling the wide variety of foundation problems that are always present. Some have been solved more or less routinely through the application of our knowledge and experience. Others have been more difficult and have called for creative ingenuity. But all have been handled with the thoroughness and capabilities of the company that has been the leader in the field for over half a century. If you're contemplating construction in your state, whether large or small, contact your nearest Raymond office and let us show you what we mean.

Lake Pontchartrain Causeway. 4,886 Prestressed Cylinder Piles. Client: Greater New Orleans Expressway Comm.; Engineers: Palmer & Baker.

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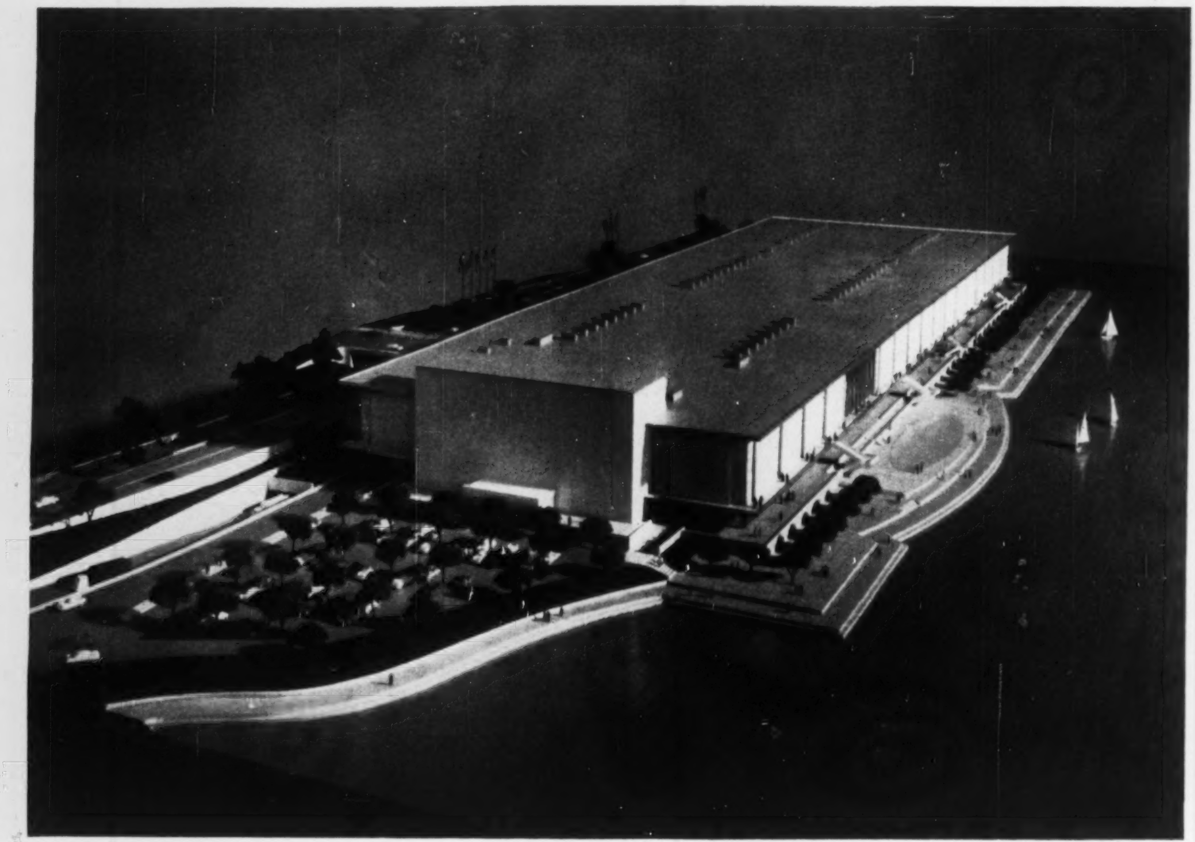

Chicago's new Exposition Center, which will be completed in 1960. Operating authority: Metropolitan Fair and Exposition Center, Inc., Chicago. General contractor: Gust K. Newberg, Chicago. Alfred Shaw, chief architect—Carl Metz, structural engineer, Chicago.

Interesting facts about...

CHICAGO'S NEW EXPOSITION CENTER

and Ryerson's role in its construction

One of the nation's most interesting current construction projects is the gigantic convention hall and exposition center on Chicago's lake front. With more than nine acres under roof, the building will have over 300,000 sq. ft. of exhibition space (about the area of six football fields) and a theater-type auditorium seating in excess of 5000.

To span the huge, column-free areas, the contractor is using 2200 Ryerson bar joists—designed to achieve maximum load-bearing capacities with minimum weight.

To prevent cracking of the tremendous expanses of concrete floor, 15 Ryerson post-tensioning cable assemblies will prestress the concrete. And to reinforce foundation, floors and walls of the entire 3-block-long structure, Ryerson is supplying 5000 tons of re-bars—accurately fabricated and delivered on schedule with job progress.

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ENGINEERING NEWS-RECORD
Vol 163, No. 22 November 26, 1959
Number of copies printed this issue 85,021

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THE CONSTRUCTION WEEK

RADICAL ENGINE DEVELOPED—A rotating combustion engine requiring no valves, no springs, no camshafts, no pistons and no connecting rods—that's what Curtiss-Wright Corp. plans to put into production next year. A rotor inside the engine and the crankshaft are the only moving parts. It has a range of from 100 to 750 hp. The engine was developed jointly with NSU Werke, West Germany.

RHODE ISLAND TOLLWAY?—Rhode Island is considering construction of its first toll highway. Gov. Christopher Del Sesto has plans to introduce a bill in the next legislature to create a turnpike authority for a proposed dual, six-lane tollway. It would run about 25 miles across the northern part of the state, linking the Connecticut Turnpike and an extension of the Boston-Providence Expressway, now under construction in Massachusetts.

NO 'SPECS' REFUND—Deposits for plans and specifications for Corps of Engineer projects will no longer be refunded to unsuccessful bidders. You can keep the plans instead. It's an economy move.

SKID ROW ON THE SKIDS?—Chicago is considering a plan that would wipe out its notorious skid row on West Madison St., replacing it with an airline terminal, heliport and parking garage. The project would cost $20 million, cover an eight-block area.

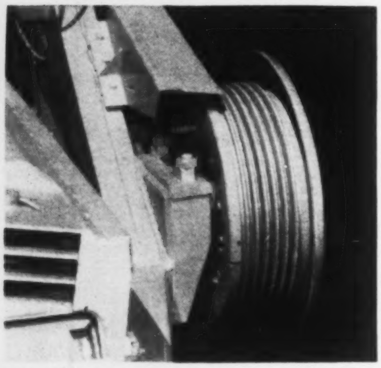
PORT DE-ICER BREAKS DOWN—A Navy attempt to keep Thule Harbor free of ice with underwater air diffusers may be frozen in for the winter. But only after keeping the port open four weeks beyond normal, the Navy points out. First came a break in one of five 1,000-ft lengths of 1-in. perforated plastic pipe that dispense the bubbles. After it was repaired, the compressors went out. By the time they were back in operation, the water surface had frozen and the bubbles piled up beneath and became encased in ice.

ANTI-VANDAL DESIGN—New York City's future schools will have fewer, smaller, and higher windows. Reason: excessive breakage. Wire-mesh screens and steel panels will shield the windows. This will raise costs and make the building "look like a jail," says one school official. But he says the Board of Education has no other choice.

UNDERGROUND PLANNING—Construction began last week on Toronto's second subway—the largest public works project ever undertaken there. It will cost $200 million, be completed in 1967. And Montreal last week received another set of plans for a proposed 1.7-mile underground rapid transit system estimated to cost about $163 million. It would be similar to the Metro in Paris, with cars running on rubber wheels.

B.F.Goodrich
CURTISS-WRIGHT

B.F.Goodrich Hi-Torque Brakes help Curtiss-Wright operators scoop up profits



Rear view of Curtiss-Wright Model CW-226 Scraper shows 26" x 7" B.F.Goodrich Hi-Torque Brake. Model CW-226 Tractor uses 22" x 7" size. Brakes for this unit are actuated with air-over-hydraulic master cylinders.

Why do so many big Curtiss-Wright tractors and scrapers (like the Model CW-226 shown above) rely on new B.F.Goodrich Hi-Torque Brakes?

For plenty of reasons: 1. Exclusive full circle stopping-power enables the B.F.Goodrich Hi-Torque Brake to stop up to twice as fast as conventional two-shoe brakes. Operators boost job profits by hauling heaped payloads, running more cycles per hour. 2. B.F.Goodrich Hi-Torque Brakes stop smoothly, without fade, so operators can tackle terrain once considered unsafe.

Other factors important to the cost-conscious operator: 3. B.F.Goodrich Hi-Torque Brakes adjust themselves automatically. 4. They need no lubrication. 5. Lining changes can be made with simple hand tools and a minimum of time. 6. Brakes can be operated by either air-over-hydraulic or direct-hydraulic actuation.

Rugged, dependable B.F.Goodrich Hi-Torque Brakes do a better stopping job on almost any kind of wheeled off-road vehicle. For more information, ask your dealer or equipment manufacturer, or write *B.F.Goodrich Aviation Products, a division of The B.F.Goodrich Company, Dept. EN-119, Troy, Ohio.*

B.F.Goodrich ***Hi-Torque brakes***

WASHINGTON OBSERVER

- **Budget-cutters aim at Air Force construction**
- **Early test slated for public works spending**
- **Runways: 10,500 ft will have to do**

● **The Air Force is bearing the brunt of President Eisenhower's budget-cutting on military construction programs.** Missile construction will keep rising, of course, but other Air Force construction connected with aircraft will be hit sharply.

Funds for all military construction in the January budget message will be some 10% below the $1.36 billion voted in September for the year ending next June 30. For the Air Force, the President's request will be about 17% below the $777 million just voted by Congress.

The Army and Navy will get just about the same amounts they got from Congress this year—some $470 million in all.

The final figures have to be fixed before Mr. Eisenhower leaves for his Europe-Africa-Asia trip next week.

The military construction budget will go to Congress as part of the Defense Department's $41-billion appropriation request—not separately, as has been done in recent years. The Administration wants all military spending to be held under the $41-billion ceiling—something it couldn't be sure of when the construction request went to Congress separately.

Some officials hope this single-package approach may help get the construction funds approved by Congress earlier than usuual. But Congress is likely to go its own way, and the way it likes is to handle construction separately. This year, the construction budget wasn't approved until well into September.

● **The temper of Congress on reclamation and other public works authorizations may be tested early in the next session.** Still in the House Rules Committee is a Senate-passed bill that would authorize the $290-million San Luis irrigation project—part of California's huge Central Valley system.

The conservative Rules Committee could bottle up this test case, although most observers expect the committee will let the bill go to the House floor. Guessing is that the House would pass it, too. Even if this happens, the project won't be among those for which starting money will be asked next year (see p. 26).

● **Even supersonic airliners, now on the drawing boards, will have to use 10,500-ft runways—they won't be lengthened to accommodate the planes.** With today's subsonic jets still in the first year of operation, designers are already talking of airliners that will hit the 2,000-mph range.

The Federal Aviation Agency put airplane manufacturers on notice last week: It won't provide federal funds for runways longer than 10,500 ft (at sea level). The move has been brewing for some time (ENR May 28, p. 22).

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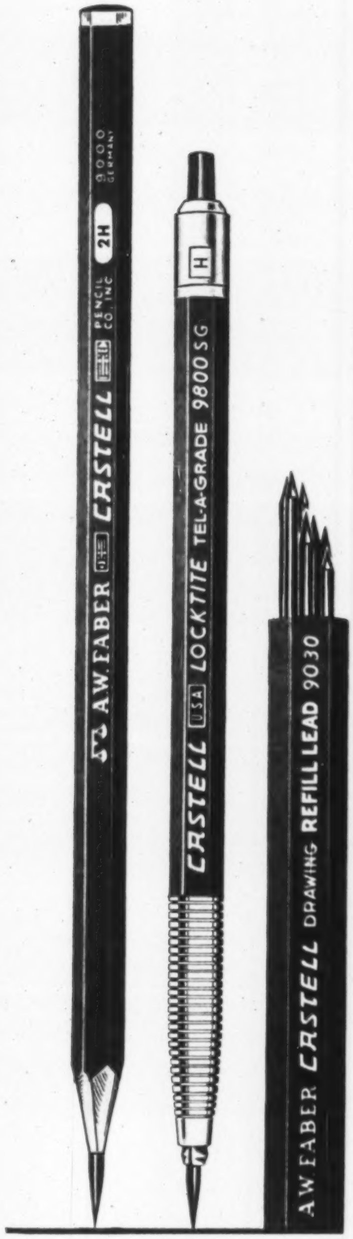

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5. **DENSITY**—The pencil lead must lay down solid opaque graphite-packed non-feathering lines in every degree, from the softest to the hardest drafting grades, providing maximum adhesion to give long-lasting agé-resisting originals.

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Highway Awards: Upturn Coming

- **Contract awards will rise sharply during the first half of next year. Second half outlook isn't as good.**
- **The outlook varies from state to state. BPR's contract control plan is having a big impact in some states, little in others.**
- **Here are the facts, based on a state-by-state survey . . .**

Prospects are bright for a record volume in contract awards on federal-aid highway and bridge projects for the first half of 1960.

State highway departments in the continental U. S. now plan to let $1.72 billion worth of federal-aid contracts in the January-June period. That's an increase of 19% over actual awards in the first half of 1959, as reported by the Bureau of Public Roads.

However, the total is not expected to come up to the six-month record of $2.06 billion reported by BPR for the second half of 1958.

Only a comparatively moderate volume of awards is expected for the remainder of this year. This continuing slump is partially due to confusion still existing in a few state highway departments over the method of adjusting their contracting plans to radical changes in availability of federal aid.

Major factor, however, is that state highway departments are limited, under the contract control system, to obligating very small portions of their fiscal 1960 federal aid in the remaining two months of this year.

Only seven states can obligate as much as 13% of the fiscal '60 total during that time. And 19 states will be able to obligate less than 10% of these funds during the period. For some states, the amount of federal aid is too small to warrant a bid call before January.

For 1960 as a whole, the outlook is for the second-best year in history for federal-aid highway and bridge construction. Contractors should sign up $3.1 billion worth of these projects next year. This would be at least 20% more than the total for the current year.

The potential for July-December next year is $1.4 billion—if the BPR obligation schedule holds to the amount apportioned to the states last month for fiscal 1961. This potential is less than the forecast $1.72 billion for the first half of the year.

Second half of the year may turn out better than now indicated. There is a chance BPR will allow state highway departments to obligate more than present 1961 apportionments, which total less than Congress authorized in legislation this year.

This depends on two things: How fast the added tax revenues build up the Highway Trust Fund between now and next June 30; and what, if anything, Congress does at its next session to change the financing basis of the Interstate Highway Program.

The ENR contract forecast reveals several important aspects of the outlook for the first half of 1960:

- There will be a big increase in contract awards compared with the very slow pace of October-December.
- In some states that have already obligated one-third or more of their fiscal 1960 total, the amount of work to come up for bids in the first six months of next year will not be particularly large, although a sharp improvement over the last six months of '59.
- First half awards in 1960 are expected to exceed those of the corresponding period in 1959 in 29 states and Puerto Rico. Awards in other states are expected to be below '59.

Among the states with the brightest outlook are California, Florida, Michigan, Missouri, Ohio, Pennsylvania, Tennessee, and Virginia. All have obligated relatively small portions of their fiscal '60 totals thus far, leaving them with from 72% to 90% of their funds available for contracts to be awarded by next June 30. Moreover, all of these states (except Pennsylvania and Virginia) told ENR they planned to utilize all available funds by next June 30.

There are at least 10 states beside Virginia that plan to use less than available federal aid during the period. Though Nevada will use only 50% and Alabama 60%, others plan to use a substantially larger share (74-96%) of the total (see table p. 22).

Insufficient state matching funds is generally the reason for states not using all available federal aid. At the same time, Michigan and a few other states are considering borrowing necessary funds to pay the whole bill for some projects that available federal aid won't cover. They would be reimbursed by the Highway Trust Fund later.

Only 15 states report they will deviate from the BPR "split." Although BPR's obligation schedule permits the states to use as much of the total as they wish for Interstate or "ABC" roads, 10 states will obligate more for Interstate highways than the BPR schedule shows, while five will put more into "ABC" projects.

States putting more into Interstate are Rhode Island, Virginia, South Carolina, Mississippi, Ohio, Wisconsin, Arkansas, Oklahoma, Montana and Utah. Those planning to put more into "ABC" projects are Louisiana, Tennessee, Kansas, North Dakota and New Mexico.

These shifts are taken into account in ENR's state-by-state forecasts.

Forecasts are based on a special ENR survey of state highway departments. They take into account the amount of federal aid not obligated as of November 1, the percentages of the total fiscal 1960 aid that the states plan to use, and the expected percentages of this total that will go to Interstate projects and to "ABC" projects.

The figures include state matching funds and assume that 74% of the total will go for construction, the balance for right-of-way and engineering costs. (Deviation from this national average in an individual state could sharply affect the forecast figures for that state, but not for the country as a whole.) Where states did not indicate the percentage of 1960 fiscal funds they expect to obligate by June 30, ENR assumed that they would utilize 100%.

The forecasts also assume that the states will obligate 14.2% of November 1 unobligated balance during November-December and 42.9% in each of the following two quarters (total of 85.8% in the first half of 1960).

Forecast: Federal-Aid Highway, Bridge Contracts

(Based on unobligated federal funds on or about October 30—thousands of dollars)

STATE	FORECAST 1959 Nov-Dec	FORECAST 1960 Jan-June	ACTUAL 1959 Jan-June	% change '59-'60 (6 Mo)	FUNDS AVAILABLE Total Available	Will Use This %	Obligated by Oct. 30	%	Balance For Use By 6/30/60	Inter-state: FY '60%
U. S. TOTAL†	**$270,529**	**$1,722,638**	**$1,452,986**	+19%						
NEW ENGLAND	**14,449**	**87,305**	**97,542**	−10						
Maine	1,873	11,315	7,464	+52	$15,369	100%	$3,500	23%	$11,869	59%
New Hampshire	1,290	7,791	11,422	−32	13,695	100	4,868	36	8,827	71
Vermont	927	5,604	16,323	−66	20,303	80	9,700	48	6,542	82
Massachusetts	7,141	43,147	48,305	−11	65,476	100	13,611	21	51,865	75
Rhode Island	272	1,645	2,453	−33	13,153	80	8,600	65	1,922	. . .
Connecticut	2,946	17,803	11,575	+54	29,795	[a]	9,200	31	20,595	72[b]
MIDDLE ATLANTIC	**33,002**	**287,444**	**192,890**	+49						
New York	1,389	96,430	106,457	− 9	143,435	100	51,000	36	92,435	61
New Jersey	9,677	58,473	28,891	+102	74,032	[a]	4,104	6	69,928	77[b]
Pennsylvania	14,688	88,747	25,609	+247	114,449	[a]	17,827	16	96,622	63[b]
Maryland	3,785	22,871	12,089	+89	49,306	74	7,389	15	29,097	81
D. C.	1,971	11,906	15,324	−22	22,736	100	9,071	40	13,665	75
Delaware	1,492	9,017	4,520	+99	10,573	90	300	3	9,216	50
SOUTH	**61,105**	**369,211**	**324,436**	+14						
Virginia	8,493	51,315	22,752	+126	91,387	80	4,500	5	68,610	89
West Virginia	3,077	18,589	23,768	−22	31,534	100	8,582	27	22,952	70
North Carolina	3,464	20,933	29,777	−30	40,052	100	20,000	50	20,052	50
South Carolina	1,946	11,756	23,155	−49	25,776	80	6,800	26	13,821	63
Georgia	7,768	46,934	36,294	+29	62,527	[a]	9,330	15	53,197	68[b]
Florida	6,274	37,908	23,173	+64	60,076	100	16,600	28	43,476	75
Alabama	2,755	16,647	37,044	−55	52,221	60	14,100	27	17,233	66[b]
Mississippi	2,852	17,235	28,707	−40	33,043	100	14,505	24	18,538	65
Louisiana	8,257	49,894	38,065	+31	60,142	100	12,474	21	47,668	45
Kentucky	6,857	41,434	38,181	+ 9	46,396	[a]	3,689	8	42,707	67[b]
Tennessee	9,362	56,566	23,520	+141	70,297	100	3,524	5	66,773	74
MIDDLE WEST	**51,847**	**313,268**	**222,302**	+41						
Ohio	19,515	117,915	27,571	+328	149,715	100	6,122	4	143,593	100
Indiana	7,784	47,030	30,191	+56	71,952	[a]	17,754	25	54,198	71[b]
Illinois	10,939	66,094	74,278	−11	129,249	100	57,000	44	72,249	70[b]
Wisconsin	3,621	21,876	34,180	−36	38,315	100	15,805	41	22,510	56
Michigan	9,988	60,353	56,082	+ 8	99,081	100	27,000	27	72,081	70
MISS. TO ROCKIES	**64,703**	**390,957**	**435,683**	−10						
Minnesota	5,746	34,721	28,535	+22	54,092	100	17,909	33	36,183	61
Iowa	4,884	29,513	54,474	−46	35,182	[a]	6,467	18	28,715	47[b]
Missouri	9,538	57,632	39,644	+45	73,949	100	8,000	11	65,949	68
Arkansas	1,828	11,044	17,023	−35	30,047	96	16,636	55	11,608	64
North Dakota	2,033	12,282	33,623	−63	17,222	100	7,550	44	9,672	23
South Dakota	1,831	11,065	19,030	−42	23,201	[a]	10,099	44	13,102	56[b]
Nebraska	3,167	19,136	17,449	+10	29,225	100	9,220	32	20,005	52
Kansas	4,272	25,814	25,096	+ 3	33,213	100	9,900	30	23,313	38
Oklahoma	2,537	15,329	17,501	−12	32,582	100	16,940	52	15,642	60
Texas	14,854	89,751	117,247	−23	130,997	100	29,373	22	101,624	61
Montana	3,594	21,716	12,370	+76	33,192	100	9,846	30	23,346	64
Wyoming	3,446	20,822	12,461	+67	26,638	100	3,226	12	23,412	69
Colorado	3,687	22,280	25,067	−11	27,519	90	2,128	8	22,640	50
New Mexico	3,286	19,852	16,163	+23	32,603	74	4,200	13	19,926	40
FAR WEST	**45,423**	**274,453**	**180,133**	+52						
Idaho	2,436	14,722	11,463	+28	20,311	100	5,144	25	15,167	60
Utah	2,641	15,956	13,580	+17	24,886	100	6,800	27	18,086	70
Arizona	3,478	21,016	20,477	+ 3	34,724	100	11,700	34	23,024	69[b]
Nevada	512	3,096	5,088	−39	16,935	50	6,000	35	2,468	54
Washington	4,933	29,803	29,091	+ 2	45,948	100	12,630	27	33,318	70
Oregon	4,684	28,299	22,888	+24	43,179	100	10,700	25	32,479	71
California	26,739	161,561	77,546	+108	226,965	100	34,951	15	192,014	80
Alaska	7,727	46,491	n.a.	. . . .	36,769[c]	34	0	0	36,769	0
Hawaii	823	4,970	3,089	+61	4,095	100	181	0.4	3,914	0
Puerto Rico	893	5,396	1,495	+261	6,249	100	2,000	32	4,249	0

† 48 states and D. C.
[a] not reported; assumed as 100% for forecast.
[b] From BPR obligation schedule.
[c] Fiscal '61 apportionment, to be obligated under 1959 law.

BRI Stresses New Look At Old Familiar Problems

Questions and problems, rather than answers, got most of the attention at the Building Research Institute conference in Washington, D. C., last week. Speakers urged more development work in fields that, though familiar and established in the building industry, haven't been fully exploited.

Major points:

Sandwich panels will only come into their own when designed as primary structural elements. So said Albert G. H. Dietz, whose keynote speech was on sandwich panel design criteria. Problems of distortion, rigidity, acoustical improvement, and quality control during production were discussed with an eye toward improving panel design and extending the use of panels into the structural field.

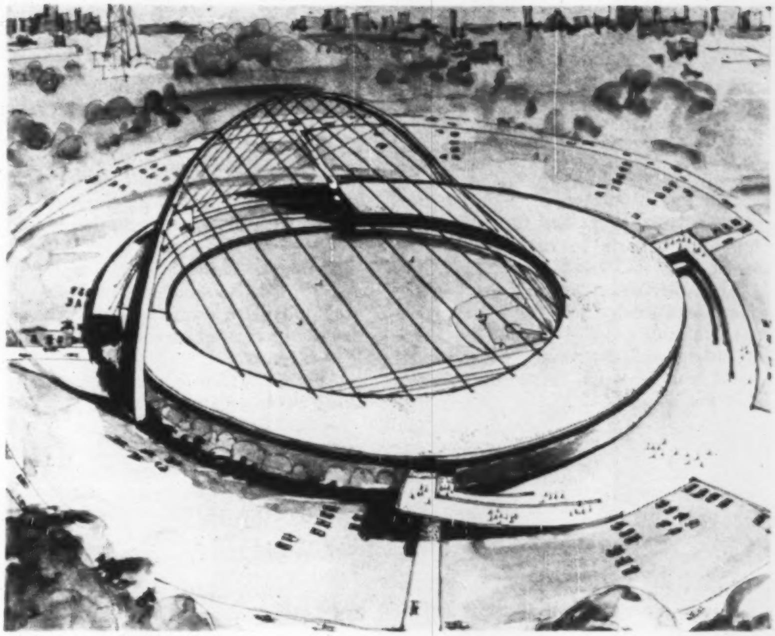
Improvement of metal curtain walls depends to a large extent on a change in specification writing practice. Performance rather than material specifications is needed to unscramble the conflicting data confronting designers.

Designers must be careful not to kill the technique by repeating monotonous patterns in building after building. It is possible to produce varied designs that are economical but still interesting. And for performance reliability, designs should be as simple as possible. One question: Why stick with rectangular panels?

Modular coordination is beginning to get the attention it deserves from the industry, but has a long way to go. Planning and manufacturing on a 4-in. module base got a real start five years ago at a Building Research Advisory Board conference of architects and manufacturers (ENR Dec. 23, 1954, p. 64). Since then, manufacturers have introduced more modular products. Today, the producer who doesn't use the system is running the danger of being shut out of a large part of his market. And designers save in planning as owners save with more economical construction.

Perhaps the most important area for promoting "the method" is in engineering architectural schools. The Audio-Visual Center of Syracuse University has produced a 19-slide series on the subject for teachers and architects. Reports and material on planning and manufacturing are available from the Modular Building Standards Association, 2029 K St., Washington 6, D. C.

Economical heating from nuclear and solar energy sources is still a long way off. Thermo-electric systems may be competitive in 8 or 10 years but the real breakthrough will come from development of small light, heat and power units in the military field.



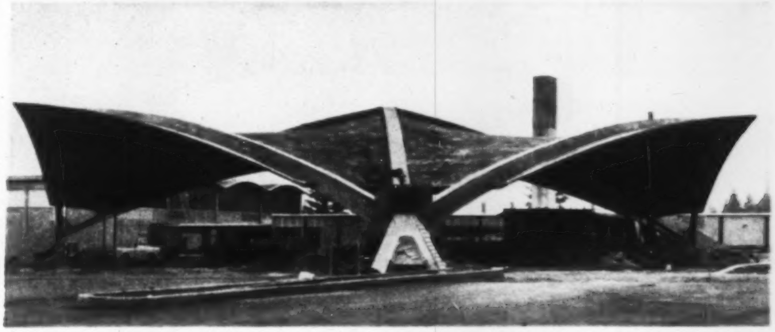
Retractable Roof for Ball Park?

New York City's entry in the proposed third major league (ENR Oct. 29, p. 27) may never have to issue a rain check if designs are approved for a stadium with a retractable roof.

One proposal submitted by Jim Nash Associates, Inc., New York City industrial designers, provides for permanent steel cables suspended between a central arch and the grandstand roof. Transparent plastic sheets, supported on the cables, fold accordion-fashion at the arch. Estimated cost: $1,750,000.

An alternate scheme features retractable cables framed between the apex of the arch and a track at the roof's perimeter. The plastic covering and its supporting cables are stored in a housing located above center field. Electric motors rapidly run the covering out in two directions to meet over home plate. This scheme would cost $3 million.

Both designs are by Oscar Nitzche, director of the Nash architectural department.



Triangular Roof for School

A triangular hyperbolic-paraboloid roof spans 160 ft to cover an auditorium going up at the Edward S. Ingraham High School in Seattle.

Architects Naramore, Bain & Johanson picked the form to provide maximum clear interior space and to get the best possible acoustical effect in the 1,150-seat auditorium.

Cost of the structure, scheduled for completion in December, is $430,400. Structural engineers for the project are Worthington & Skilling; contractor is Sound Construction & Engineering Co.

Contractor Gets Help From the Sky

A contractor constructing a 20-in. natural gas pipeline across peat bogs and marshland near Hugo, Minn., used a helicopter to sink the pipe in a 5-ft-deep swampy ditch.

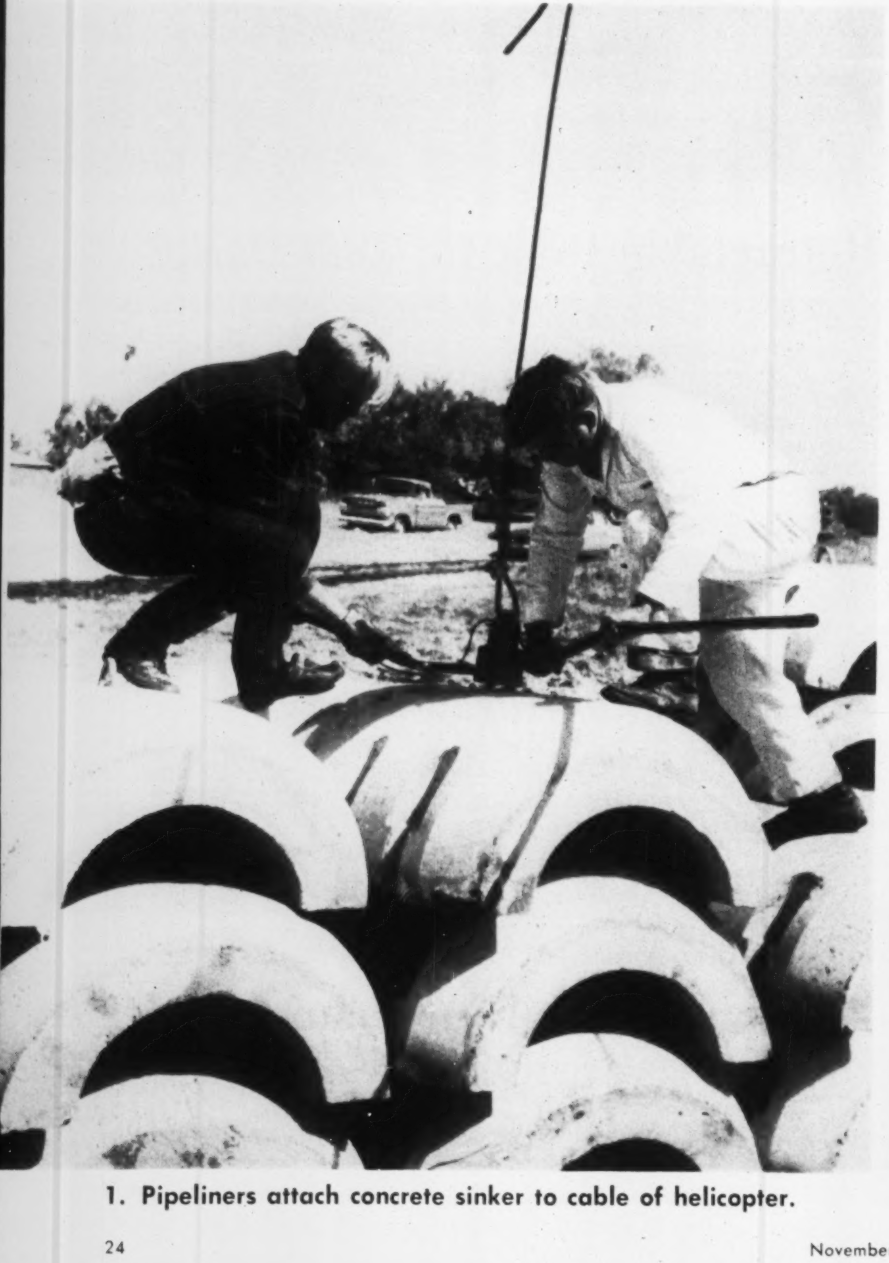
Pipeline Welding & Construction Co., Oswego, Kan., had to apply heavy concrete weights to the line to submerge it in the soupy mud.

The contractor couldn't get conventional equipment into the marsh without building corduroy roads that were expensive and dangerous. Equipment could break through the corduroy roads into the mire.

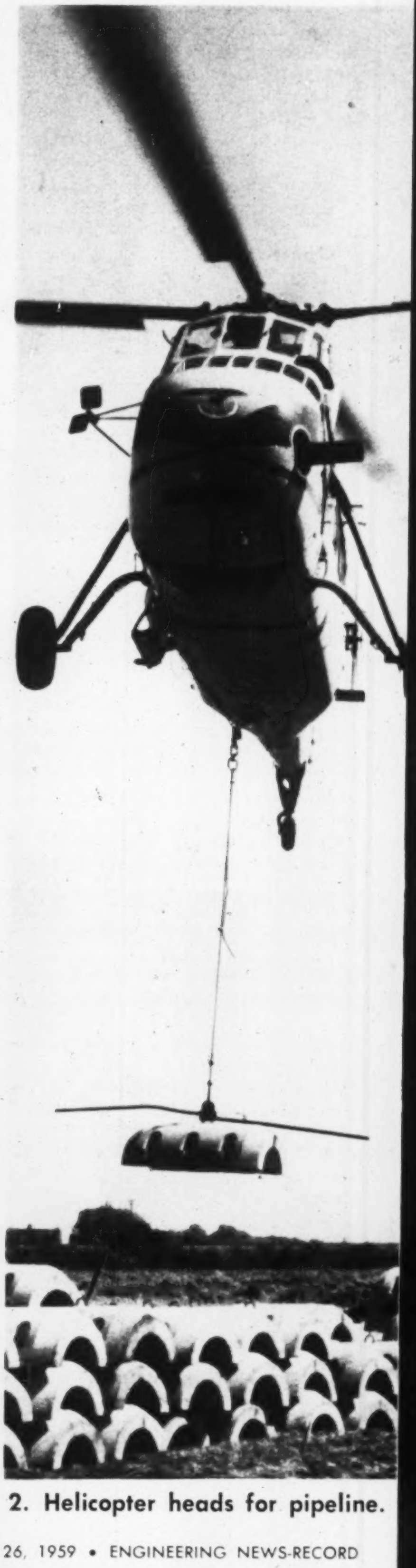
PW&C solved this problem by hiring Petroleum Helicopters, Lafayette, Iowa, to bring in the weights by air. The 1,500-lb and 3,000-lb sinkers were carried to the site on an external sling and lowered gently on the pipeline.

The weights were stockpiled along a highway one-third of a mile from the site. The Sikorsky S-58 helicopter was able to make a round trip in three minutes and place more weights in a half day than a ground crew could have done in two weeks.

About 1,800 weights were placed in three weeks on the project.

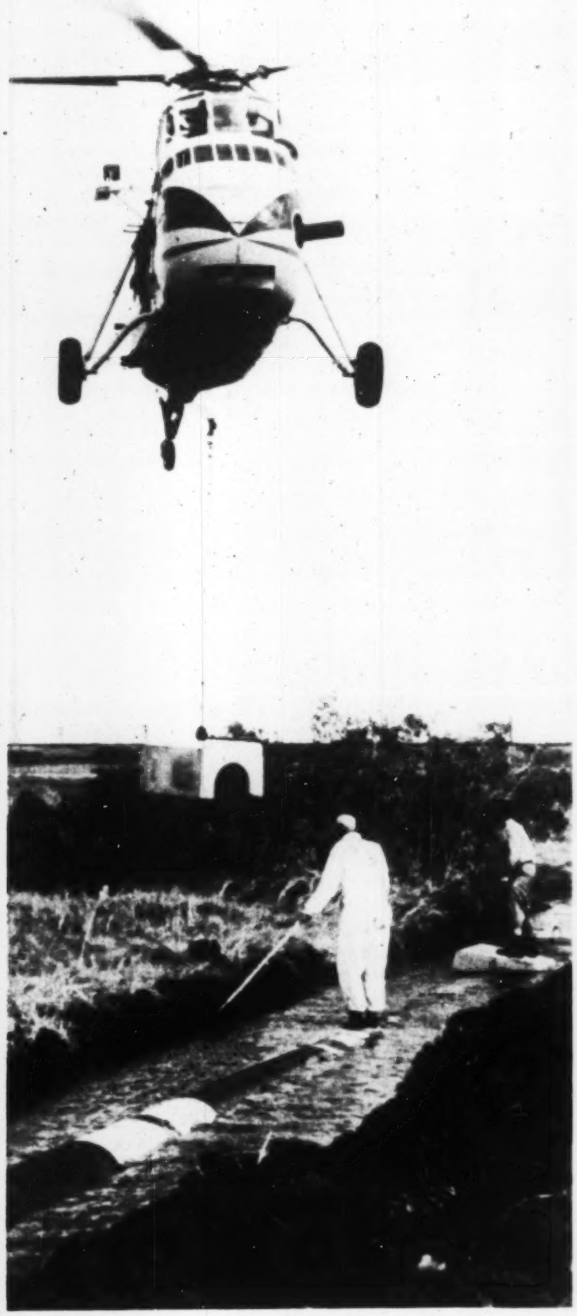


1. Pipeliners attach concrete sinker to cable of helicopter.

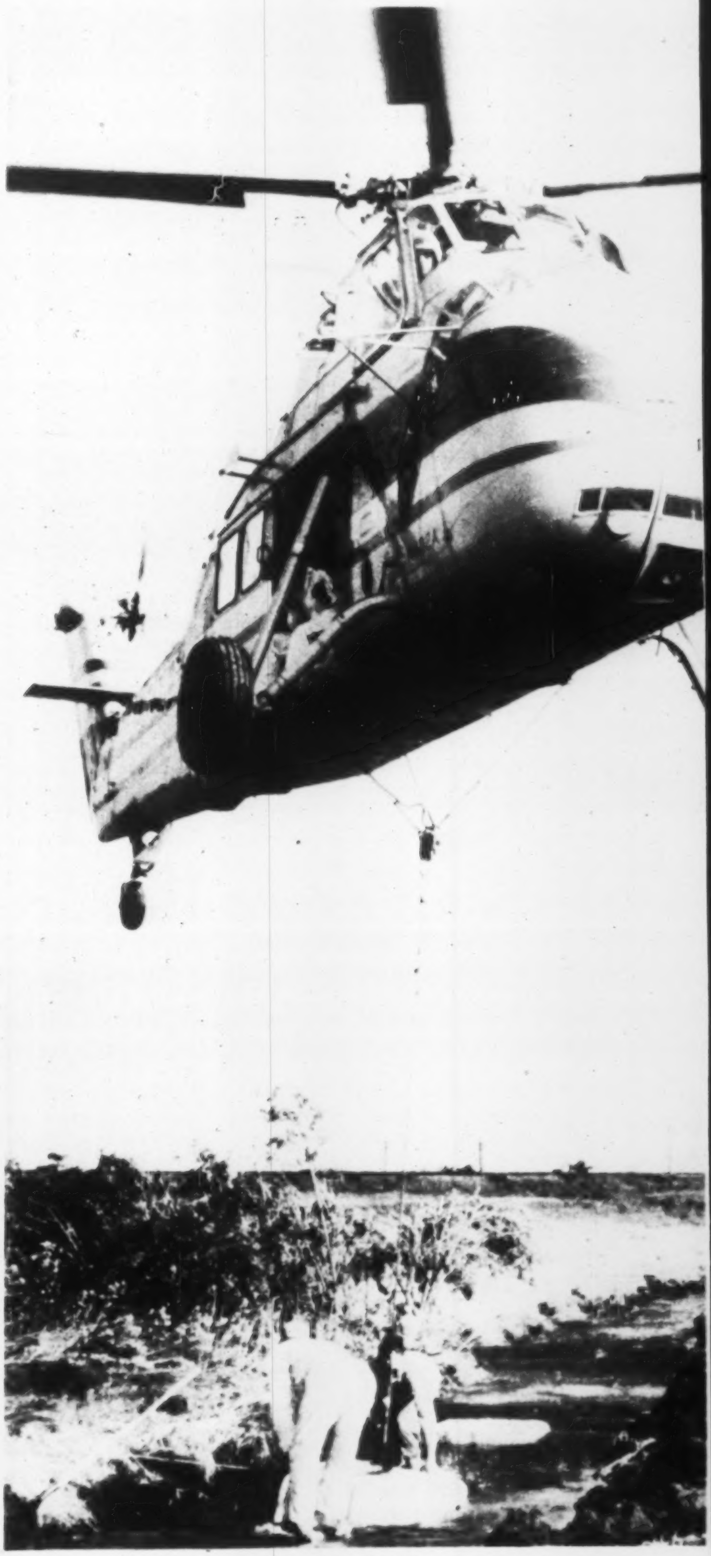


2. Helicopter heads for pipeline.

o Lay Pipe in a Swamp



3. **Pilot maneuvers weight over floating line.**



4. **Ground crew positions weight on pipe.**

Switch: Ike Plans New Starts

President Eisenhower has decided to recommend new public works starts in the budget now being prepared for presentation to Congress in January.

The decision represents a partial retreat from the Administration's campaign to hold down spending next year—a retreat forced by the political needs of the coming Presidential election year.

Although Mr. Eisenhower won't be in office long enough to spend the money he wants appropriated, what he does could strongly influence the chances of the next Republican candidate. Moderate liberality on water resources development has these advantages over last year's stringent economy:

- It demonstrates that Republican middle-of-the-roaders support reclamation, flood-control and navigation improvements to the limit that a balanced budget will allow.
- It may help detour another tidal wave of new starts, such as Congress unloosed last year. (Then, the President's veto of the first public works bill only angered the legislators, who finally forced through 67 new starts, overriding a second veto.)

How far the Administration will go in requesting new starts is not yet known and possibly not yet determined. Interior Secretary Fred Seaton, has thus far refused to be pinned down on how many projects—and which ones—the President will request.

There is a big backlog of authorized Corps of Engineer projects from which the White House can pick and choose, and the Bureau of Reclamation's list of ready-to-go improvements is long enough to permit a sizable showing of selected water-and-power projects in the 17 western states.

Reclamation projects that look like naturals for the Administration's money budget include: the $15.4-million Almena irrigation unit in Kansas; the $3.3-million Bully Creek extension of the Vale irrigation project in Oregon; the $5-million Spokane Valley irrigation project in Washington; the $11-million Kanopolis irrigation unit in Kansas; the $10.9-million Florida irrigation project in the upper Colorado River Basin in Colorado; and the $5.7-million La Feria irrigation division of the lower Rio Grande rehabilitation project in Texas.

Another big project, the $109.3-million Yellowtail Dam and powerplant in Montana, should fare much better at the coming session. This project—long authorized and even voted construction money in the past—has been held up by an Indian lands problem now considered solved. Congress will almost certainly start the job, whether the Administration recommends Yellowtail or not.

There is another project, not on the Interior Department or Administration list of prospects, that has a good chance for authorization and possibly even for some starting money next year. That is the mid-state irrigation unit in Nebraska, which several years ago asked a federal loan for partnership development but now wants to go ahead as a 100% federal project.

Reclamation's backlog for the western states gives the Administration some small latitude in selecting projects with an eye on the political potential. But the Army Engineer reservoir of authorized and ready-to-go projects permits a much more acute blending of political savvy and sound economic planning.

The Engineers have some 400 so-called active projects (authorized but unstarted), all of them high-priority jobs with good benefit-cost ratios. They are the cream of the authorized $8-billion backlog of flood-control and navigation works.

Among Corps of Engineer possibilities, the Administration may be expected to favor new starts for regions that have suffered from recent floods—Indiana's Wabash River Valley, California, Pennsylvania, the still unfinished New England program, and like areas. Tops among these prospects would logically be local flood protection projects—relatively low in cost, with high voter appeal—and other flood-control works that have been completely designed for contractor bidding.

U.S. Charges Rebar Conspiracy

The Justice Department this week charged 12 fabricators and six steel producers with conspiracy to eliminate competition in the sale of reinforcing bars in seven western states.

The government charges fabricators:

- Allocated fabricating jobs among themselves and adopted uniform contract terms.
- Induced steel mills making bars to refuse to sell to general contractors and to limit their sales to steel warehouses, building supply dealers and small fabricators.
- Refrained from buying bars manufactured in foreign countries.

The government says the steel mills:

- Agreed to refuse to sell to general contractors direct from the mills.
- Limited their sales to warehousing and building supply dealers to small rebars and lengths inappropriate for heavy construction jobs.

The government charges the conspiracy has eliminated general contractors from fabrication of reinforcing bars on large construction jobs in the western states area; prevented warehousing and building supply dealers from selling reinforcing bars to general contractors for such jobs; suppressed competition among the defendant fabricators; and restricted importation of reinforcing bars produced abroad.

The fabricators named in the suit are: Blue Diamond Corp., Los Angeles; The Flintkote Co., New York City (Since May, Blue Diamond has been operated as a division of Flintkote.); Ceco Steel Products Corp., Los Angeles; Herrick Iron Works, Hayward, Calif.; F. A. Klinger, Inc., Stockton, Calif.; Mechleis Steel Co., Vernon, Calif.; Pittsburgh-Des Moines Steel Co., Pittsburgh; Rutherford & Skoubye, Inc., Downey, Calif.; Joseph T. Ryerson & Son, Inc., Chicago; San Jose Steel Co., Inc., San Jose, Calif.; and Soule Steel Co., San Francisco.

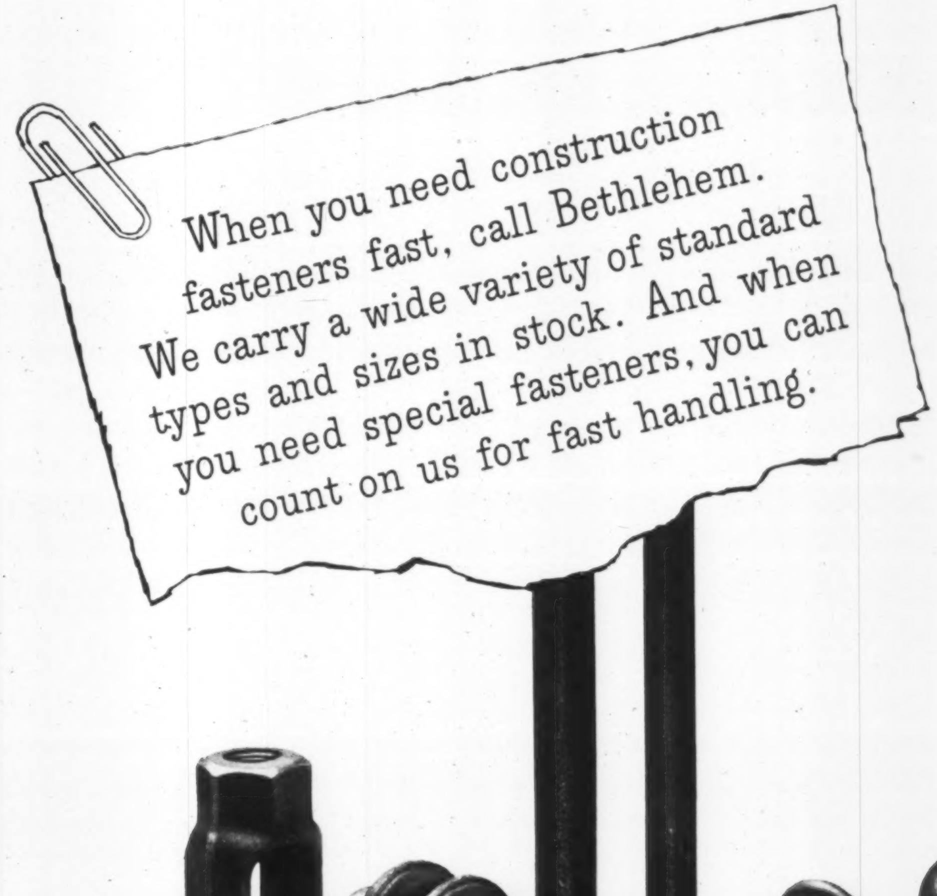
The Western Reinforcing Steel Fabricators Association is also named a defendant.

The steel producers named are: Bethlehem Pacific Coast Steel Corp., San Francisco; Bethlehem Steel Co., Bethlehem, Pa. (Since July, Bethlehem Pacific Coast Steel Corp. has operated as a division of Bethlehem.); Judson Steel Corp., Emeryville, Calif.; Pacific States Steel Corp., Niles Calif.; Southwest Steel Rolling Mills, Los Angeles; and United States Steel Corp., Pittsburgh.

The alleged agreements or understandings covered a market area that includes Arizona, California, Idaho, Nevada, Oregon, Utah, Washington.

In this market, the six defendant steel producers and four other mills sold 491,000 tons of reinforcing bars, worth $69 million, in 1958. Of this amount, over 330,000 tons were sold to fabricators located in the seven western states.

Antitrust lawyers say the 12 fabricators named in the suit last year, bought 230,000 tons of bars, worth $32 million, from steel mills located in the western states. And the 12 fabricators sold 212,000 tons, worth some $57 million, from their fabricating plants for use at job sites in the West.



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Antitrust Charges Filed Against National Homes

National Homes Corp., the biggest manufacturer of prefabricated houses, is threatening to become a monopoly, the federal government charged last week.

In an antitrust suit filed in Lafayette, Ind., the Justice Department charged National Homes with violation of the Clayton Act and asked for a court order requiring National to sell seven smaller companies it acquired this year (ENR Aug. 20, p. 17).

The acquisitions boosted National's share of the prefab market from 25% in 1958 to about 38%, the government says, and eliminated some competition National faced in its Midwest markets, gave it new entry into the California market and boosted Southeast sales.

Companies involved in the acquisitions include Knox Corp., Thompson, Ga.; American Houses, Inc., Allentown, Pa.; Lester Bros., Inc., Martinsville, Va.; Best Factory-Built Homes, Inc., Effingham, Ill.; Thyer Manufacturing Corp., Toledo, Ohio; Fairhill, Inc., Memphis, Tenn.; and Western Pacific Homes, Inc., Decoto, Calif.

The government is basing its suit largely on the theory that National, already the biggest producer of prefabs, should not be allowed to further dominate the industry through the acquisition of smaller competitors. The suit points out that none of National's competitors has more than a 5% share of the market.

Government statistics used to bolster its legal argument show that production of prefabricated houses more than doubled between 1947 and 1954. Figures also show that prefabs accounted for 6.6% of all houses built in 1957.

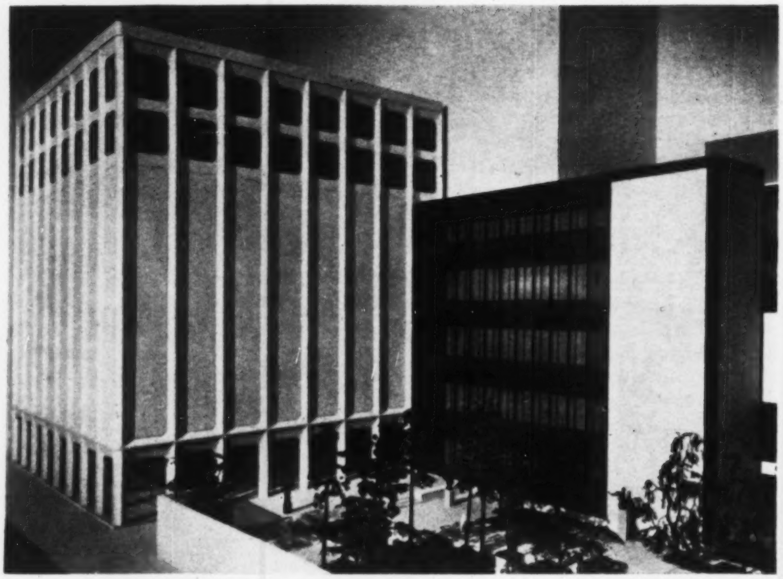
New School Code Gives Districts More Freedom

State school officials have scrapped Virginia's aged school construction regulations for a revised manual that gives local districts more freedom.

Aims: to reduce red tape resulting from excessive state control; to allow greater flexibility in planning schools for the needs of individual communities.

Among the changes:

- Ceiling height requirements, formerly one-half the classroom width, are eliminated. Architects now design for a minimum light intensity.
- Minimum land requirements are reduced, but the manual recommends avoiding small sites because they make expansion difficult.
- Comparative cost data on initial, maintenance, and repair costs are tabulated for various items.



New Wing for Modern Museum

New York City's Museum of Modern Art will build a $7-million wing, connected to the present building by a glass-enclosed corridor.

The eight-story structure will have a glass-enclosed ground floor set back for an arcade at the building front, five gallery floors faced in stone, and two top stories for offices.

A major problem confronting the designers is how to frame the required 80x90-ft bays. Under study by Lev Zetlin, New York consulting engineer, are these two systems:

- A flat-plate (two-way) concrete floor slab, with perimeter restraint provided to reduce interior bending moments.
- A composite steel-concrete design, utilizing the united action of structural steel shapes and concrete floor slab.

The new wing will provide the museum a total display area of 43,000 sq ft compared to the present 12,000 sq ft. Storage space more than doubles—from 4,500 sq ft to 11,000 sq ft.

Architect is Philip Johnson Associates, New York City.

No Cooperation, No Contract

The General Services Administration moved last week to ban construction awards—on either a prime or subcontract—to companies whose officials refuse to testify before or furnish information to Congressional committees.

A provision being inserted into GSA prime construction contracts will make such refusal grounds for cancellation of an outstanding contract or for disqualification from contracts out on bid.

The new rule was pushed by Sen. John L. McClellan (D., Ark.), who directed the recent Senate investigation into labor racketeering. Behind Senator McClellan's recommendation is the case of Stephen Gorman, president of Gorman Bricklaying Co., St. Louis. Mr. Gorman refused to tell the McClellan committee about his dealings with an alleged labor racketeer.

Mr. Gorman's company is the masonry subcontractor to both Millstone Construction Co. and MacDonald Construction Co. The former is prime contractor on construction of a new federal office building in St. Louis, the latter on construction of a new federal records center in the same area.

Up to now GSA has been powerless to act on Mr. Gorman's subcontracts since the agency's contractual relations are with the primes only.

The new rule requires GSA construction contractors to agree that: "Contractor, its officers and agents, will not refuse to furnish information or records, except as provided by the terms of the contract involved, to any government agency or any establishment in the legislative or judicial branch of the government with respect to this contract or any other government contract or any subcontract under such a contract to which he is a part. The contractor agrees to include a similar provision in his subcontracts under this contract.

In case of breach, the government may terminate the contract.

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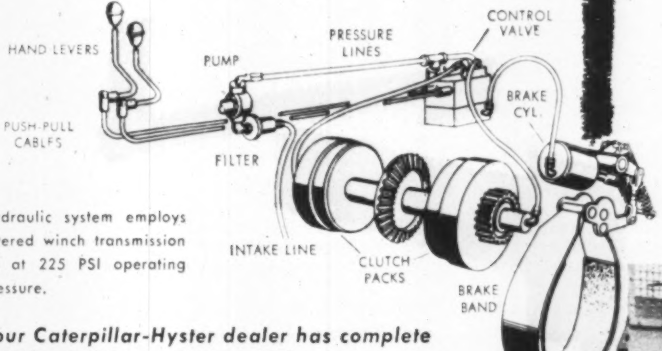

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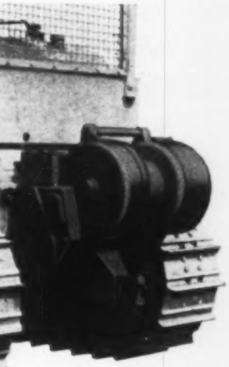

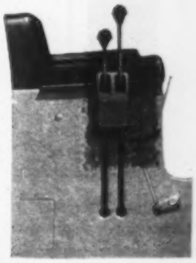

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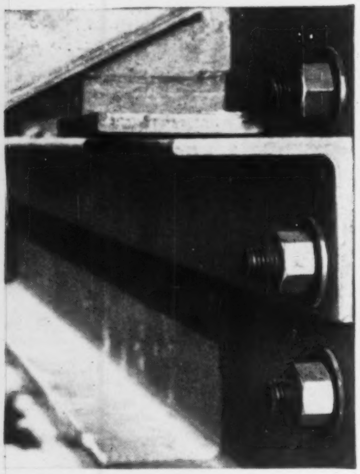

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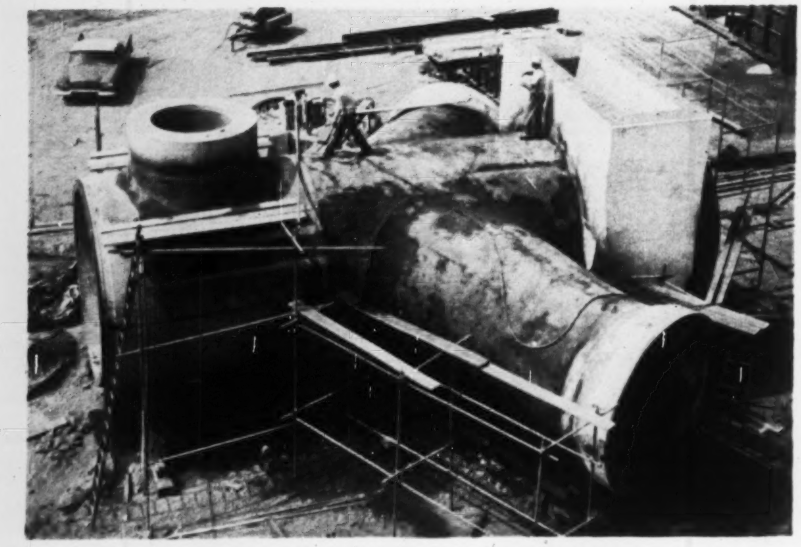


Big Wye Goes to Sea to Stay

A 300-ton concrete wye has been placed on the ocean bottom five miles off El Segundo, Calif., as part of the effluent outfall of Los Angeles' Hyperion Sewage Treatment Plant. The huge concrete section ends a 27,500-ft run of 144-in. pipe and starts off two 3,960-ft diffuser legs of 102-in. and 72-in. pipe.

The wye measures 41 ft along the axis of the main pipe, 45 ft across the legs and 15 ft high. It is made of steel plate encased inside and out with reinforced concrete. Bell and spigot ends were precast separately and attached.

The main pipe extends a short distance past the fork. The end of the extension, open now to permit passage of a cleaning device, later will be closed with a concrete bulkhead.

The wye was enclosed on shore in a steel caisson from which the concrete legs projected. Then, like the other pipe sections, it was lashed to a pontoon, floated out and lowered to the bottom (ENR July 2, p. 38). After the wye was bedded, the enclosing caisson was filled with rock and pressure-concreted.

The Hyperion outfall was designed for the Los Angeles Board of Public Works by Hyperion Engineers, a joint venture of Daniel, Mann, Johnson & Mendenhall; Holmes & Narver, Inc.; and Koebig & Koebig. United Concrete Pipe Corp. is manufacturing the pipe. Hyperion Constructors, a joint venture of DeLong Corp.; Healy Tibbits Construction Co.; Macco Corp.; Peter Kiewit Sons Co.; Raymond International (sponsor); and Tavares Construction Co., is installing the line.

Russians Here to Study Plastics

A seven-man delegation of Russian construction men arrived in Washington last week to study plastics research and development, see how the U.S. uses plastics in construction and learn how we have handled field application problems.

Plastic production for the Soviet building industry is limited now to floor tile and "film," says A. G. Zaitsev, head of the delegation and director of the Institute of Building Materials of the Academy of Building and Architecture in Moscow. He included linoleum in the same general category. Sheet plastic is also being produced, but only for export right now.

The Soviet Union's greatest need is for foamed plastics and fiber reinforced plastics, Mr. Zaitsev told ENR. Application would be in concrete sandwich panels and curtain walls.

The Russians are producing prefabricated concrete building parts up to 20x20 ft, the delegation reports. Biggest problem is dimensional stability. Typical wall panels have 1.2-in.-thick faces of reinforced concrete with a 4-in.-thick rock wool core. Lightweight expanded concrete is the other standard core material.

Joints are filled with concrete, with a polyester used for sealing, but the Russians are having adhesion problems.

Synthetic resins are going into Russian concrete now on an experimental basis. They're being tried in highway paving and airport runways.

Around the Country . . .

• Can you top this?—A broadcasting company in Maine claims its new, 1,619-ft-high TV tower is the "tallest man-made structure in the world." Kline Iron & Steel Co., Columbia, S. C., designed and built the tower for station WGAN-TV at Raymond, Me., 20 miles northeast of Portland.

• Bridge breakers—Researchers testing Northwestern University's $500,000 half-scale model bridge report that its A7 steel endposts can take 300% of the allowable design load before initial failure. The maximum total load on the 100-ft bridge was 2.1 million lb.

• New York housing project—The New York City Housing Authority will start construction in 1960 of Alexander Hamilton Houses, which include five 21-story apartments, community center, children's center and health station. The $23.3-million project is designed by Architects Associated, New York City.

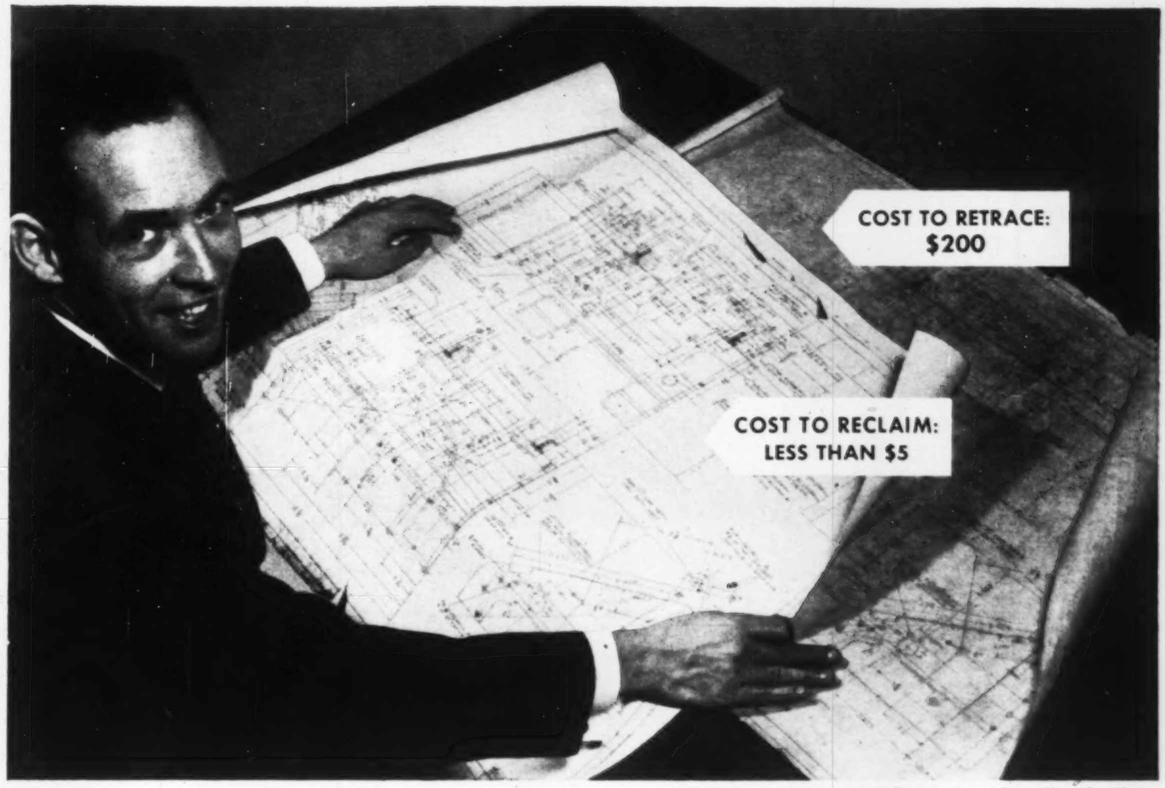
• Harvard picks an architect—Famed French architect Le Corbusier will design the new Visual Arts Center for Harvard University. It will be his first building in the U. S.

• Port program coming—Philadelphia will start work next year on a six-year port development program to cost $17 million. Included are the rehabilitation of several Delaware River piers, a new $7-million general cargo terminal, pleasure boat marina, heliport, and restaurants.

• Feather River Bridge—Stolte, Inc., and Morrison-Knudsen Co., Inc., of Oakland, Calif., will build an $8.7-million highway and railway bridge across the north fork of the Feather River 11 miles north of Oroville for the California Department of Highways. The highway portion will be 2,731 ft long and 56 ft wide.

• Wright project—Bids will be opened at the San Rafael, Calif., Court House on December 22 for first phase of the $9.5-million Marin County Civic Center designed by the late Frank Lloyd Wright.

• Manhattan motorway—Plans for the $83-million Lower Manhattan Expressway have been submitted to New York City for official approval. The elevated highway would link the Holland Tunnel and the West Side Highway with the Manhattan and Williamsburg Bridges on the Lower East Side. Plans call for construction to begin in 1960.



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Roadbuilders Wind a Loop Around

Golden State Freeway overpasses span San Bernardino Freeway.

Construction funds are again flowing into a $175-million roadbuilding program that will relieve congestion on one of the most heavily travelled routes in the U.S. The job is a 19-mile loop of freeways around downtown Los Angeles.

The work was set back this year by the slowdown in allocation of Interstate Highway funds. But the California highway department this month ended a six-month moratorium on bid calls and, despite a slightly reduced program, all the remaining contracts for the project are in the 1959-60 budget. It will still be about three years, however, before the complete loop is in service.

The Los Angeles Loop is formed by the Golden State and Santa Monica freeways. The Golden State Freeway extends southeast from the San Fernando Valley and terminates at the Santa Ana Freeway at a point east and slightly south of downtown Los Angeles; the Santa Monica Freeway starts at this point and goes west. The loop formed circles the heart of the L. A. freeway system.

Traffic relief will be provided throughout the downtown freeway section, but in particular at the four-level grade separation that forms the junction of the Hollywood, Santa Ana, Pasadena and Harbor freeways. On a typical weekday, 350,000 vehicles use the four-level separation. And traffic counts of more than 200,000 vehicles a day are routine on the Hollywood Freeway, just west of the separation, and on the Harbor Freeway, just south of it.

So far, $75 million has been spent on right-of-way acquisition and another $20 million on completed construction—most of this on a six-mile stretch of the Golden State Freeway in the Glendale area. Almost $30 million of construction is under way; and nearly $50 million is yet to be awarded.

Included in the work under way is a complex junction of the Golden State, Santa Ana and Santa Monica freeways. That job will cost $10 million. In a Y-shaped area 1¼ miles long by ¾ mile wide will be 32 separate interchange structures and a substantial amount of grading and paving.

One job, just completed, required detouring 190,000 vehicles per day on the Harbor Freeway to permit construction of an overcrossing for the Santa Monica Freeway.

A third significant contract includes in its $8.3 million cost more than $2 million in federal flood control funds for construction of a flood control channel that supports 30-ft-high fills.

First loop job to be bid now that

Los Angeles

calls have been resumed is for a Golden State Freeway stretch at the northern end of the loop. Although this is not critical for the functioning of the loop, it is important for best operation of roads completed or nearly completed.

The two remaining contracts on the Golden State Freeway will span the gap between sections now in use and work under construction. Included is a crossing of the Pasadena Freeway.

On the Santa Monica Freeway, three contracts need to be awarded to fill the gap between the Harbor Freeway and the Los Angeles River. One of these at the easterly end could provide some temporary relief by funneling traffic off the Santa Ana Freeway, across the Los Angeles River, and into the area south of the downtown section.

On the Golden State Freeway, three contracts totaling six miles have been completed and are in use. First of these was finished in September 1957, and most recent was completed last August. This freeway section extends from Glendale Boulevard and Riverside Drive in Los Angeles, past Griffith Park, skirting the City of Glendale, and into Burbank. Construction cost was more than $15 million. This freeway will be extended another 3½ miles under an $8.3 million contract. Work, now under way, is scheduled for completion in May, 1961.

Two additional Golden State Freeway jobs are under construction. They will carry traffic from just south of the Pasadena Freeway across the San Bernardino Freeway and nearly to the Santa Ana Freeway. One of these—a $7.6-million job—is nearly done; the other, a $3-million job, is scheduled for completion early next year.

On the Santa Monica Freeway, three bridge construction jobs have been completed but are not yet usable. One is for bridges at the interchange with the Harbor Freeway. The other two are structural steel girder bridges crossing the Los Angeles River—one contract was for foundations and piers and the other for superstructures.

This Santa Monica Freeway work crosses the Los Angeles River and is actually a series of five bridges that finger out into eight different roadways on the east side of the river.

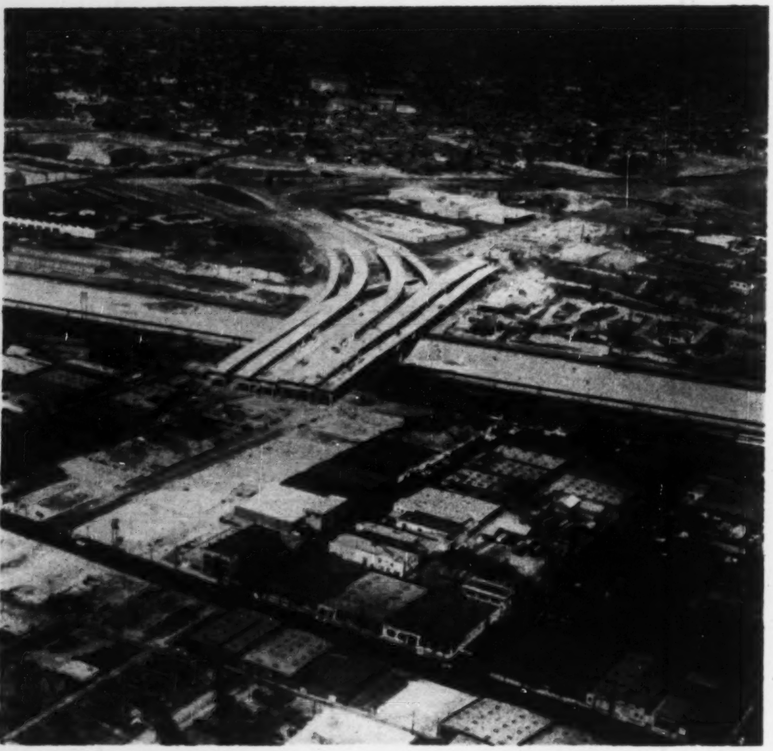
Biggest job on the loop is the $9.9-million East Los Angeles Interchange on the Golden State Freeway. Peter Kiewit Sons' Co. began work last April and should be finished in March, 1961.

The project is actually a series of 32 separate interchange structures connected by short sections of roadway.

(*Turn the page*)

Loop road will relieve heavy congestion on existing routes.

Completed section of Golden State is between a river and a park.



Los Angeles River Bridge is actually five separate structures.

The structures make up about 60% of the contract total.

The project connects the Golden State and Santa Monica freeways at their terminal point and the existing Santa Ana Freeway, which crosses through the job. And provision is made for connecting with the yet-to-be built Pomona Freeway, which will start at this point and extend eastward.

The East Los Angeles Interchange will require 1,500,000 cu yd of excavation, 67,000 cu yd of structural concrete, 50,000 cu yd of concrete and asphalt paving, 4,235,000 lb of structural steel and 13,253,000 lb of reinforcing steel.

Perhaps the most difficult part of this operation has been scheduling the work. Among the complications facing project superintendent Norman Barnes and his staff is the necessity for keeping traffic flowing on the Santa Ana Freeway, which carries 142,000 vehicles a day through the job. The contractor is permitted to close off one lane at a time for four hours during the middle of the day. Later, the freeway will be closed between midnight and 5 a.m. for erection of steel-girder bridges.

Work has just been completed on a $1.6 million, two-year contract that provided a crossing of the Santa Monica Freeway over the Harbor Freeway. Although the crossing won't be used for another year or so, the job was undertaken as early as possible to minimize interference with traffic on the heavily traveled Harbor Freeway.

A detour had to be provided for 190,000 vehicles a day, despite the early start. This detour cost $380,000—a great expense for detour construction. The contractor also had to provide for Venice Boulevard, a busy east-west city street. This street was carried over the detour on a temporary timber bridge.

The overcrossing proper is a pair of multiple laned structures, mostly of reinforced concrete box-girder construction.

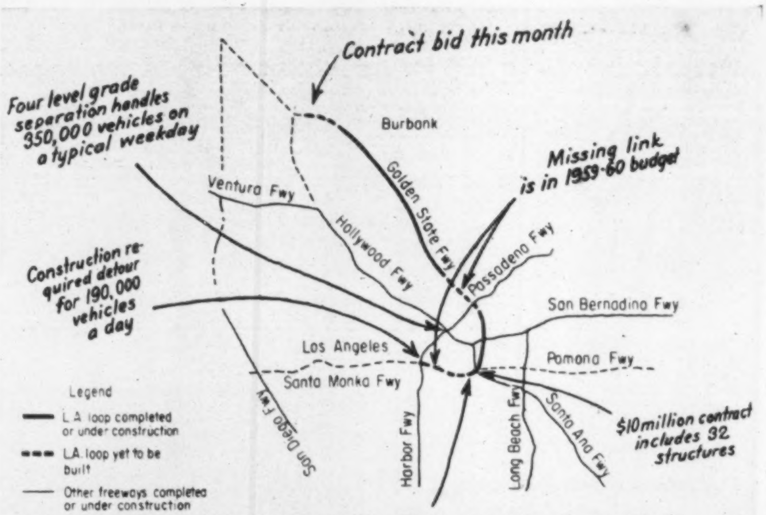
A current contract on the Golden State Freeway at the edge of the City of Burbank includes extensive flood channel work. Contribution to the $8.3-million contract cost includes $2 million from the Corps of Engineers' flood control funds and $400,000 from the City of Burbank. Burbank's contribution, financed by municipal bonds, is for a city street overhead crossing.

The Corps of Engineers contribution constructs a flood control channel that generally parallels the freeway and eventually goes underneath it. The channel under the freeway consists of about 0.6 miles of rectangular covered box sections varying in height from 11 to 18 ft and in width from 20 to 30 ft.

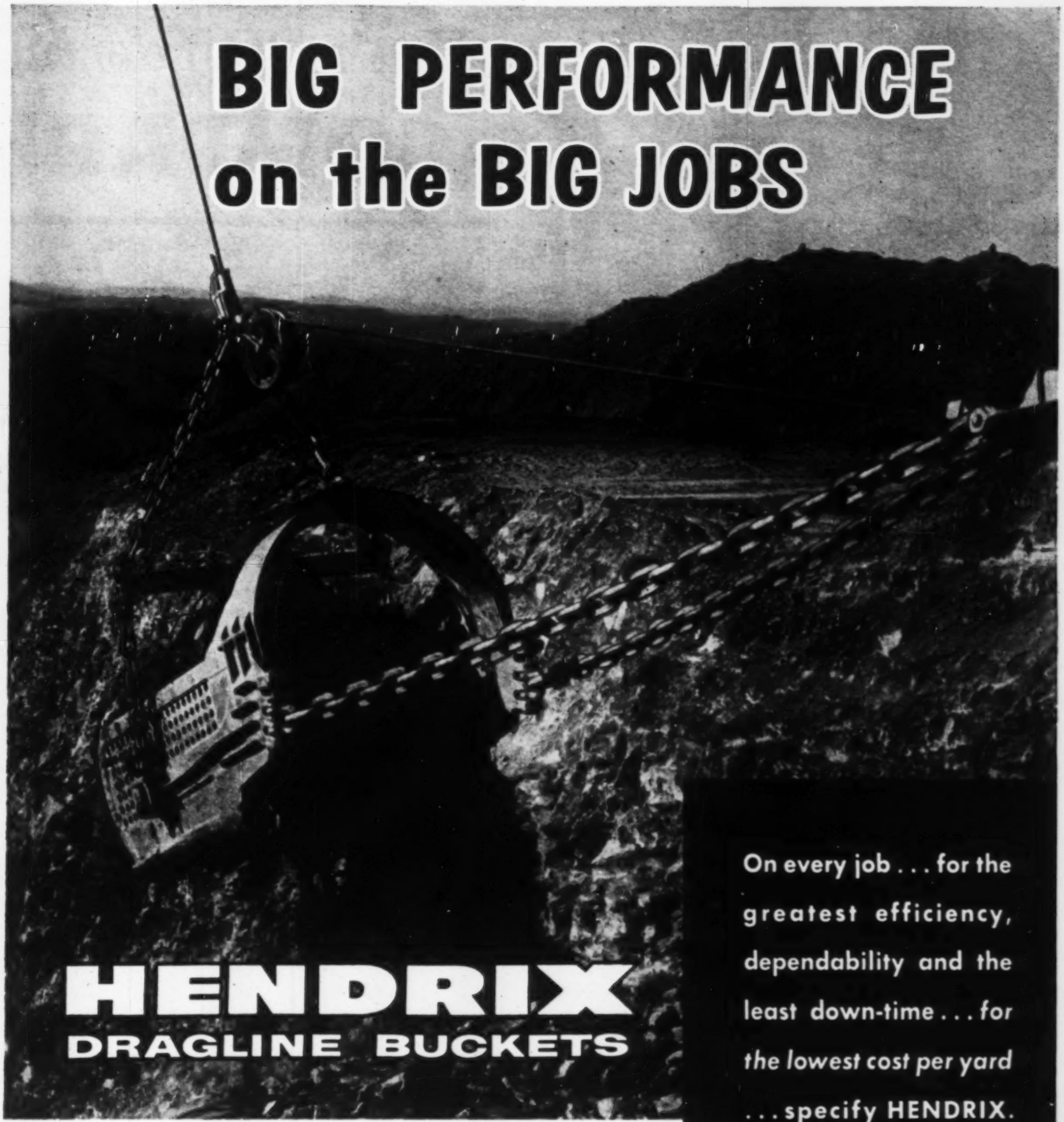
The box sections have to be strong enough to support a 30-ft fill in addition to the freeway live loading. As result of these loadings, the invert has to be as heavy as 4½ ft thick, with walls ranging up to 3½ ft and roof slab up to 3¾ ft thickness. This storm drain channel is scheduled for completion next fall in advance of the winter runoff season. And the entire project is due for completion in 1961.

Generally, the freeways in the loop are eight lanes wide. There are some places where the freeways are wider and at least one spot where only six lanes are needed because a substantial part of the traffic is carried by collector roads. Interstate standards are used.

All construction is a project of District VII of the California Division of Highways under the direction of E. T. Telford, assistant state highway engineer, and Lyman R. Gillis and A. L. Himelhoch, district engineers.


Contract bid this month
Four level grade separation handles 350,000 vehicles on a typical weekday
Burbank
Missing link is in 1959-60 budget
Ventura Fwy
Golden State Fwy
Hollywood Fwy
Passadena Fwy
Construction required detour for 190,000 vehicles a day
San Bernadino Fwy
Los Angeles
Pomona Fwy
Santa Monka Fwy
San Diego Fwy
Harbor Fwy
Long Beach Fwy
Santa Ana Fwy
$10million contract includes 32 structures
Legend
L.A. loop completed or under construction
L.A. loop yet to be built
Other freeways completed or under construction
Future freeways
LA River bridge has five separate roadways

How the loop will look.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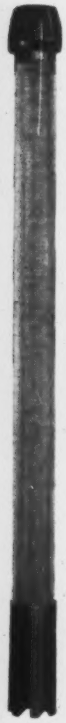

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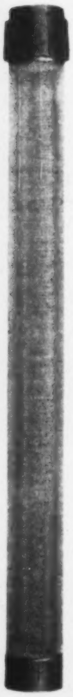

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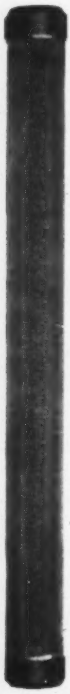

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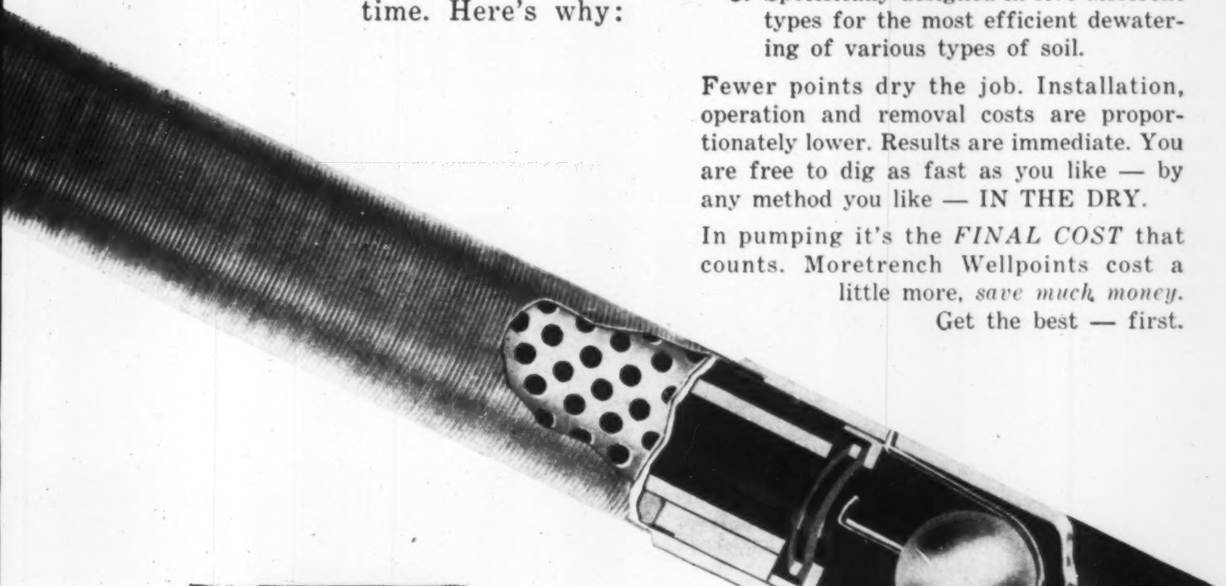

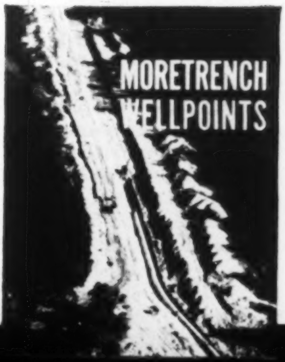

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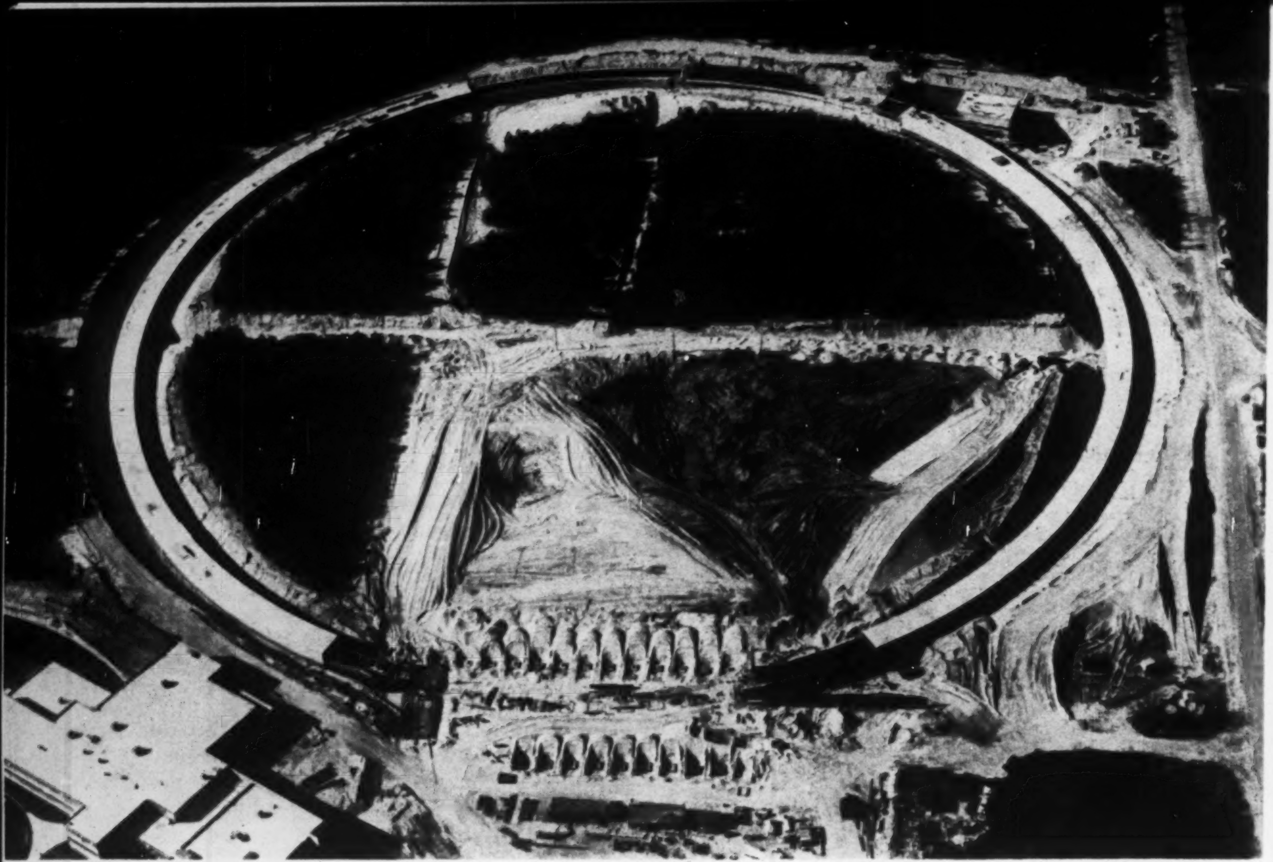


Circular tunnel 850 ft in diameter houses magnets for a synchrotron set on precise foundations.

Synchrotron Concreting Calls for

The foundation of the Alternating Gradient Synchrotron, a 25-billion-electron-volt proton accelerator at Brookhaven National Laboratory, Upton, N. Y., is one of the most precise construction tasks ever undertaken.

Heart of the synchrotron, or atom-smasher, is a giant ring of 240 magnets, each from 6 ft to 7½ ft long. They are housed in a half-mile-long circular tunnel about 10 ft below ground.

The tunnel is augmented by an underground linear accelerator. It will give protons (hydrogen-atom nucleii) initial impetus tangentially into the ring. Inside the ring is a high-vacuum chamber about 7 in. wide and 3⅜ in. high, through which the protons will be accelerated to energies of 25 to 30 bev. The tunnel is also interrupted along its periphery by a target section. This is located in a building large enough for shielded experimental operations.

The proton beam, controlled by the strong-focusing method, will travel at nearly the speed of light. It will flash around the half-mile long atomic race track 260,000 times in about one second, until diverted into the target area. Here, the beam will smash into other particles, shedding new light on the mysteries of matter and energy.

By Robert M. Jacobs, *chief structural engineer, Stone & Webster Engineering Co., New York City, designer of the unusual foundation for the new Brookhaven synchrotron.*

• Tight tolerances—Stone & Webster Engineering Corp. was assigned the job of providing a foundation for the magnets to unusually tight tolerances. The alignment of the orbit center line had to be held to a root-mean-square deviation of 0.005 in.

There was to be no abrupt discontinuity between the magnets over pile supports exceeding ±0.010 in., nor between the magnets at the center of a supporting girder exceeding ±0.005 in.

These conditions were to be met when the units were placed in operation—about 18 months after completion of the foundation and 12 months after installation of the magnets.

• Foundation stability—Shortly after the decision to proceed with construction of the synchrotron, it became apparent that major design and construction problems would arise from the requirements for accuracy and stability for the foundation of the accelerator. Misalignment of the magnets, either in original positioning or during operation, would result in scatter and possible loss of beam. Consequently, it was essential that the foundation be as stable as possible.

Initial studies showed that deflection of the magnets might arise from deformation of their supports due to changes in volume and temperature, both ambient and localized. Deflection might also arise from distortion of the soil mass or movement of the supports relative to the soil mass.

A site was selected that could be economically served by existing utilities and was convenient to existing experimental buildings. Also considered was orientation to permit use of an emergent beam for a considerable distance beyond the target building and in a direction away from other buildings, to minimize shielding requirements.

To permit examination of the upper soil strata, which were considered of primary interest, four test pits were ex-

Rolling scaffold made form erection easier.

Expandable beams simplified roof formwork.

Thousandths-of-an-Inch Accuracy

cavated near the periphery of the ring and 14 soil borings were drilled over the area. These borings indicated that the soil consisted primarily of sands and gravels, with some clay strata, down to bedrock at a depth of about 1,600 ft. The material was basically homogeneous, but interspersed with local variations.

Measurement of stress-deformation characteristics of the upper soil was obtained from the load-settlement record of the existing Brookhaven nuclear reactor and 3-bev Cosmotron. The latter record was particularly useful in providing data on secondary settlement, since it covered a period of about three years.

However, as a check on the primary settlement of the reactor and Cosmotron and to obtain data on soil behavior over a large, heavily loaded area, a direct load test was made on the soil.

Primary load-settlement relations turned out to be about the same for the nuclear reactor, Cosmotron and soil load tests, indicating that data obtained from the two existing structures could reasonably be applied to the synchrotron area.

Both primary and secondary settlements were considered to be of importance to the stability of the magnets.

• **Variation in shielding loads**—Most of the ring was constructed in a cut-and-cover tunnel. The amount of cut varied from about 4 ft at the target area to a maximum of about 26 ft.

Throughout the length of the tunnel, the foundation would be loaded, unloaded and reloaded as the various magnet girders, magnets and other equipment were installed. This work was scheduled to be completed about 18 months before final leveling of the magnets; so most of the primary settlement would be eliminated. After installation of the equipment the loads would remain practically constant.

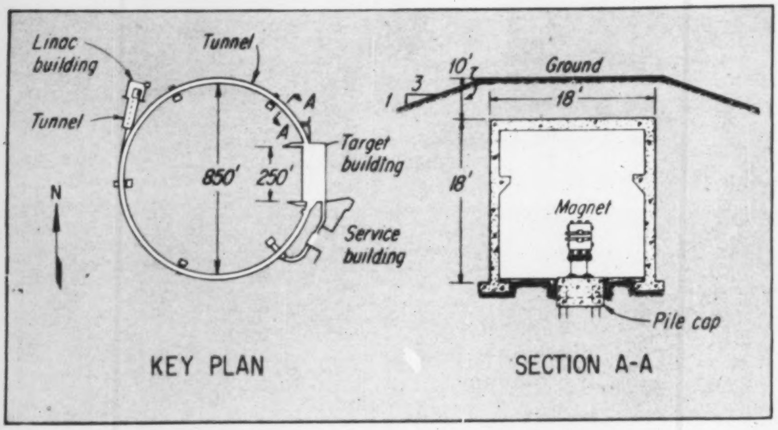
Secondary settlements, however, may arise from variations in load around the tunnel. Throughout the target area, for example, there is heavy concrete shielding on each side of the magnets, and bending magnets and other heavy experimental equipment will be mounted on the floor immediately adjacent to magnet supports. This equipment and shielding may be moved occasionally.

Experience might indicate that it is necessary to increase the amount of shielding after the machine is in operation. Consequently, consideration had to be given to both primary and secondary settlements, throughout the target area in particular, arising from the initial loading on areas adjacent to the magnets and from probable changes in loading.

• **Foundation in two parts**—Considerations of necessary temperature control and shielding indicated that the synchrotron should be constructed in a 850-ft-dia concrete tunnel covered by about 10 ft earth in the normal section.

This tunnel section, which is about 18 ft square, continues in a circle one-half mile in circumference, except for about 250 ft, where the ring passes through the air-conditioned, 100-ft-wide target building. Shielding in the target building area consists of movable, dense-concrete blocks.

It was evident, therefore, that the foundation problem for the synchrotron could be resolved into two parts—for the normal section and for the



SYNCHROTRON is fed protons from Linac Building (left in plan). A ring of magnets in a tunnel accelerates them to high speed, leads them to target.

target building, with provision to be made for transition sections.

• Girder foundation—On the basis of stability requirements, results of field tests and economics, the engineers decided to support the magnets on a reinforced concrete girder foundation and to isolate it from the enclosure. The ring girder rests on 480 steel H-piles, each 50 ft long, which were selected as a result of vertical and lateral load tests. These piles will transfer the loads to the deeper soils, which are more rigid than the surface soils because of the confining weight of the material above. Also, variations in soil support would be evened out.

A steel-girder grillage is used directly under the magnets, since tests indicate they will not affect the magnetic field and are more stable and economical than concrete.

The girders were made discontinuous. They are 22 ft long and supported at the ends on four-pile groups. This arrangement should eliminate distortions from temperature and other external forces that would be present if the ring were continuous.

• Target area—Movable shielding in the target area is carried by a concrete mat. This foundation would be less likely to affect the magnet foundation if supported on deep sleeved piles. However, it is much more economical to support the mat on the ground, which is what the engineers decided to do.

Also, a mat on ground would be less subject to damage from overload, if shielding is increased in the future. Moving the shielding around in the target area might produce secondary settlements of the magnet foundation from 0.01 in. to 0.02 in.

Provision was made to relevel and realign the magnets in this area with precision jacks, if necessary, to maintain operation. Also, sheetpiles were driven to a 10-ft depth around the H-pile groups for the purpose of protecting the magnet supports from adjacent soil distortion caused by loads on the shielding mat.

Distortions from ground temperature changes, changes in groundwater level and vibration were found not to be of sufficient magnitude to affect the stability of the magnet supports.

• Surveying problems—A major problem in engineering the half-mile ring within the tolerances required was establishing primary construction control points. These had to be set with great accuracy. Initially, they were to be used for positioning the various structural components for the tunnel to insure closure of the ring. Later, after adjustments, they were to be used for positioning the magnet-supporting structures.

Since this latter work would be done inside the tunnel, with no access to a central control point, the engineers decided to make the original survey from the periphery after excavation to grade, with three radial checks to the central point.

But the central point was considerably higher than the floor of the excavation, hence couldn't be seen from there. So trenches were cut on a slope along the radial check lines from the central point to the peripheral points. Lines of site were then direct and taping could be done more accurately.

A total of 24 primary points was established along a circle, evenly spaced at chord distances of 112.370 ft. These points were so located that any three continuous control points along the circumference could be seen from each of the others within the tunnel.

From these staked positions, a peripheral survey was made. It closed within $\frac{3}{16}$ in., with small errors at the radial check points. This was considered sufficiently accurate for setting templets for pile driving, laying out the tunnel footings and establishing permanent monuments at the 24 primary points around the ring.

For stability and permanence, 8-in.-dia pipes were driven 20 ft into the ground with their tops at about the same level. Stainless steel plates were welded to the tops, and a resurvey established centerpunched marks on these plates well within the allowable tolerance for this phase of the work. Elevations were also established on the plates from deep-seated bench marks.

The precise survey to establish and maintain horizontal control was performed with an accuracy of that used for first-order geodetic work. A highly accurate theodolite was used; it could be read directly to 1 sec and the nearest $\frac{1}{10}$ sec estimated.

Taping was carefully done. Necessary corrections were made for slope, temperature and tension pull. To reduce inaccuracies caused by atmospheric refraction and large variation in temperature, surveyors made critical measurements at night and in good weather.

• Precision tunnel construction—The 18-ft square, half-mile long, circular tunnel was completed in less than three months with the aid of an unusual form-setting device. Working around the circle in two directions, the general contractor used two sets of movable forms, each forming about 112 ft of tunnel at a time.

The cross section of the tunnel was concreted in two stages. The lower sections of walls were placed up to a height of 11½ ft, which included a concrete haunch designed to carry a permanent 20-ton crane. This work was done with prefabricated form panels. Then, two rubber-tired traveling scaffolds, riding the crane haunch, were used as a working platform to erect the forms for the upper walls and roof.

Accuracy of the formwork was such that the traveling scaffold, which fitted the tunnel with small side clearance, passed easily around the entire circumference without rubbing the haunches.

Compressive strength of concrete averaged 4,500 psi at 28 days, against a specified 3,000 psi.

Forms were stripped, cleaned and moved ahead without lost motion during construction. The traveling scaffold weighed about 1,000 lb and, with loads up to 6,000 lb, was easily moved by hand. The contractor completed about 225 ft of tunnel a week.

White Construction Co., New York City, was the general contractor. The project is being carried out under the supervision of Associated Universities, Inc., New York City.

Another vital concrete job at this accelerator project was construction of the shield around the synchrotron target. For that story, see next page.

Truck mixer fed concrete into forms for blocks for the Brookhaven synchrotron shield.

Heavy Concrete Mixed in Transit

Shielding concrete for the new Alternating Gradient Synchrotron of the Brookhaven National Laboratory at Upton, N. Y., was made with ilmenite ore as aggregate. It proved to be economical and satisfactory for the purpose.

Design of heavy concrete for shielding against radioactivity became important with the development of atomic energy. Various heavy and metallic aggregates have been used to increase density.

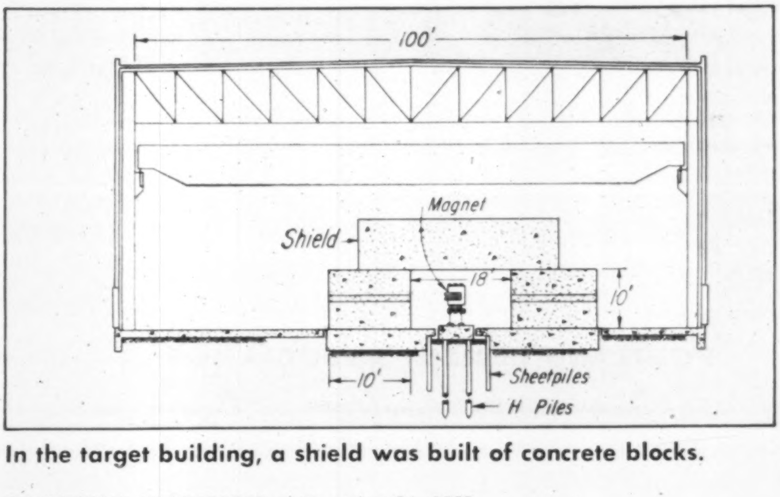
By Norman Posner, *supervising field engineer, Stone & Webster Engineering Corp., New York City*

At Oak Ridge, Tenn., barium sulfate was available from nearby mines, and its early use there and on other Atomic Energy Commission projects established the term barite concrete as almost a synonym for heavy concrete.

However, for the Hanford Atomic Products Operation in Oregon and for AEC projects in other localities, it was found more economical to use magnetite ore, which can be obtained with an iron content of 60% or more. This makes a firm, strong aggregate, whereas barite is fragile and difficult to handle.

During the last few years, for the Canadian AEC project at Chalk River and in other Canadian operations, extensive use was made of ilmenite ore, containing about 40% iron and 35% titanium, which makes a firm, strong aggregate.

When competitive bids were invited for the Brookhaven shielding concrete, the specification called for magnetite, placed by the intrusion-grout method. But bidders were invited to submit proposals for any type of concrete that might be suitable. The lowest bid was based on concrete made with ilmenite aggregate mixed and placed conventionally. After due consideration and investigations, this alternate was accepted.



In the target building, a shield was built of concrete blocks.

• Atom smasher—The heavy concrete was to be made into precast blocks to form an enclosure for that part of the 850-ft-dia magnetic ring of the synchrotron within the target building. Large magnets on the half-mile ring, together with radio-frequency accelerators, will guide and accelerate to extremely high energy levels a stream of protons confined within a continuous tube. The speeding protons will create lethal radiation, requiring heavy shielding for the protection of personnel.

At the target building, where the protons will collide with various targets, the radiation levels will be even further intensified. When collisions occur, atoms will be smashed into components of even smaller sizes; sometimes new

NEW
SOUTHLAND LIFE TOWER
IN DALLAS

Curtain walls of precast concrete achieve dramatic interplay of light, color and texture

The unbroken whiteness of the end wall is in striking contrast to bright, blue-green spandrel panels of the sidewalls. And on the broad base wall below, light and shadow form bold patterns across the sculptured facing. 42 stories, and the tallest office building in the West, the Southland Life Tower is part of a $35,000,000 project in downtown Dallas, Texas.

It's all done with concrete panels. For the end walls and base, exposed quartz aggregate and white portland cement give surface roughness and brilliance. The smooth-faced spandrels are vitreous tile cast in concrete. The total effect is one more example of the unlimited design possibilities in today's new forms of concrete.

Architects and Engineers: Welton Becket, FAIA, and Associates, Los Angeles and Dallas. Consulting Architect: Mark Lemmon, AIA, Dallas, Texas. Structural Engineers: Murray Erick Associates, Los Angeles.

FOR STRUCTURES...
MODERN
concrete

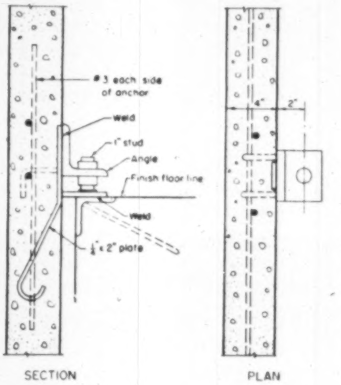
PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

SOUTHLAND LIFE

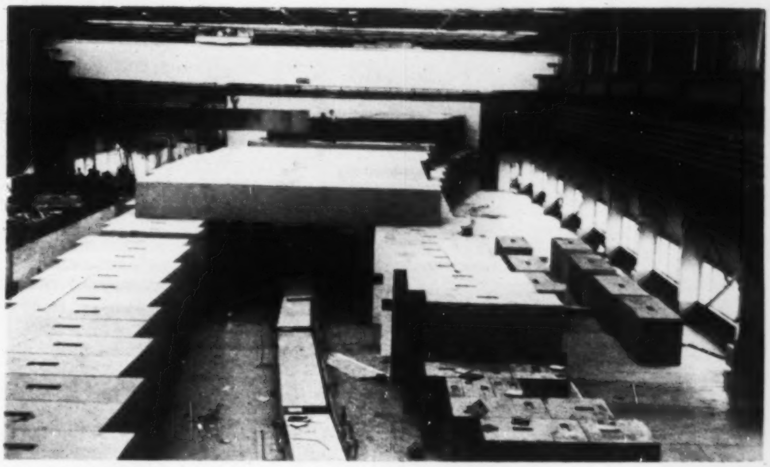
Curtain walls go up fast with easy-to-hang concrete panels

At the Southland Center (both the Southland Life Tower and the Sheraton-Dallas Hotel) panels were lifted from trucks, fastened to frame and the joints were sealed as construction progressed. Erection of concrete panels is fast and easy, saves money and construction time. Today, in similar construction everywhere, the use of lightweight concrete gives added ease of handling, over-all weight reduction. And because wall units often need no back-up, reduced cross-sections are achieved with concrete panels.



Fastening simplicity. The drawing above shows one method of connection. The use of studs gives room for adjustment, so panels can be accurately aligned in case of slight irregularities in the building frame.

Portland Cement Association



SHIELD BLOCKS have inserts for lifting. They can be removed by the overhead crane to provide access to experiment equipment.

matter will be created. In the process, high-energy radiation will be given off.

• Concrete shield—Outside the target building, the ring is enclosed in a tunnel of ordinary concrete covered with earth for shielding. Within the target building, it is essential that the operators be able to remove the shielding and open up a section of the ring for setting up and dismantling equipment for various experiments. Hence, for a distance of about 250 ft along the circumference of the ring, protective cover is built up of removable blocks of heavy concrete, which can be dismantled and set aside by an overhead crane. These blocks form a tunnel for the ring, leaving a clear passageway 18 ft wide and 10 ft high.

The shield walls are 10 ft thick and the roof 4 ft thick. However, roof beams have been designed to support another 4-ft layer if required.

The walls are comprised of 196 blocks, weighing about 21 tons each, 224 blocks weighing 11 tons, and 804 blocks varying from ½ ton to 2 tons each. The 220 roof beams, which span from wall to wall, weigh 33 tons each.

About 14,000 tons of ilmenite ore were required for this shielding. The blocks are all reinforced with steel rods in a conventional manner, to take care of the tension stresses developed when they are picked up by the crane. In the roof blocks the reinforcing was designed to take bending stresses due to their span across the tunnel.

All pieces have specially designed steel inserts for the attachment of lifting apparatus, and the corners are faced with steel angles to prevent damage and chipping during handling.

• Accurate concreting—Close tolerances were stipulated for the dimensions of the blocks so as to have them fit closely together and make the shield as tight as possible. The contractor decided to cast the heavy concrete in steel forms to insure this accuracy.

Each block was carefully measured and weighed after completion and rejected if the required shape and density of concrete was not achieved.

Average density of the shielding, as computed from the weights of the completed blocks, was 246.210 lb per cu ft. Cost of the completed blocks, installed in the target building, was around $190 per cu yd for 4,350 cu yd.

The successful bidder for the shield work established a yard near the site and adjacent to an existing ready-mix concrete plant. Before the award was made, prototype blocks were cast with the ilmenite aggregate and the density of these samples was taken into consideration in preparing the detailed terms of the contract.

• Aggregate from Canada—The ilmenite was obtained by the contractor from a plant of Continental Iron & Titanium Mining Co. at St. Paul, Quebec.

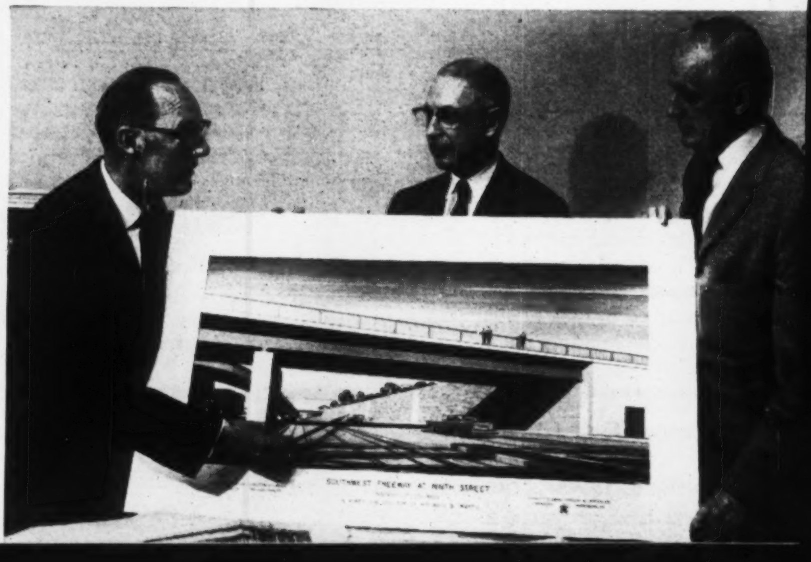
All ore was inspected at the mine before shipment. The following requirements were established for it:

Ilmenite Aggregate	Minimum Specific Gravity	Sieve Gradation of Aggregate
Course	4.61	½ to 3 in.
Medium	4.58	½ to 1½ in.
Fine	4.65	No. 4 to ½ in.

At the open pit mine, the ilmenite was excavated by crane. Soil, rocks and organic substances were removed by hand. The ore was crushed and screened at a plant near the mine, and all material originally passing the ½-in. screen was discarded due to the presence of silica and alkali, which caused the specific gravity of fine aggregate to be too low.

Material meeting the gradation and

Steel bridge carrying US Route 22 over Bushkill Creek in the vicinity of Easton, Penna.


SOUTHWEST FREEWAY AT NINTH STREET

John R. Dietz, Vice President, Earl D. Schwartz, Chief of Bridge Section, and W. H. Corddry, President, discussing an artist's rendering of a steel bridge over the Southwest Freeway in the District of Columbia.

Steel enjoys wide use in short-span bridge design

at Gannett, Fleming, Corddry & Carpenter, Inc., Consulting Engineers, Harrisburg, Penna.

This firm has designed short-span steel bridges for many important highways. These include the Pennsylvania, New Jersey and West Virginia Turnpikes; the Connecticut Expressway; Garden State Parkway; Penn-Lincoln Parkway, Pittsburgh; Schuylkill Expressway, Philadelphia; and Southwest Freeway, Washington, D. C.

Normally, 70% of their short-span bridges are designed in steel. There are many good reasons for this, according to Mr. John R. Dietz, Vice President in charge of the highway and bridge division of the firm.

Steel is a familiar material. There is a tremendous library of knowledge accumulated on steel and there are no unknown factors. This is important because the designer is looking for reliable performance.

Steel goes up in a hurry. Short spans must be constructed with least interference with traffic. The rapidity with which steel can be erected is a big advantage.

Steel permits maximum headroom. Also minimum approach alteration, less dislocation of existing buildings and roads and lower costs.

Steel reduces costs. Lighter construction with steel reduces foundation costs and faster erection saves labor. New high-strength steels offer greater strength with less bulk.

Steel production facilities have increased. The steel industry has greatly expanded its facilities for manufacture of structural shapes and plates.

You can confidently design in steel—the material you know best, and the material that offers you the most.

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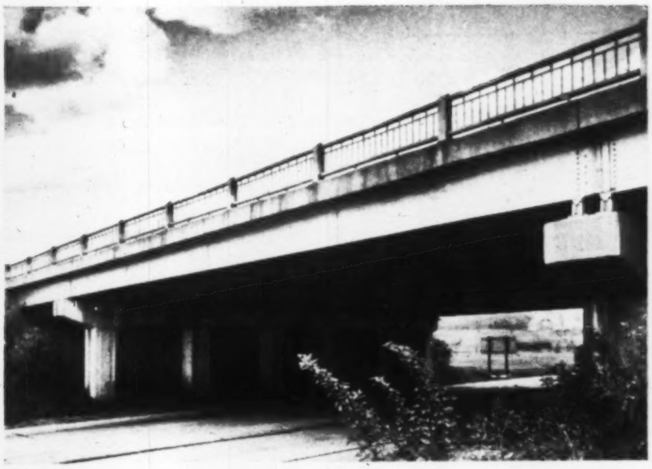
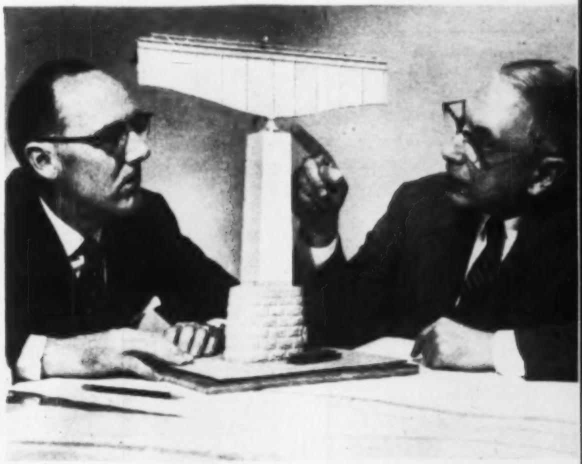


Steel bridge carrying Route 22 over Route 309 near Allentown, Penna. Steel is versatile and available. It can be readily welded, flame-cut, riveted, bolted.



Mr. Dietz (left) and Mr. Schwartz discussing a model of a welded steel girder on an elevated pier.

PILE DRIVING
by
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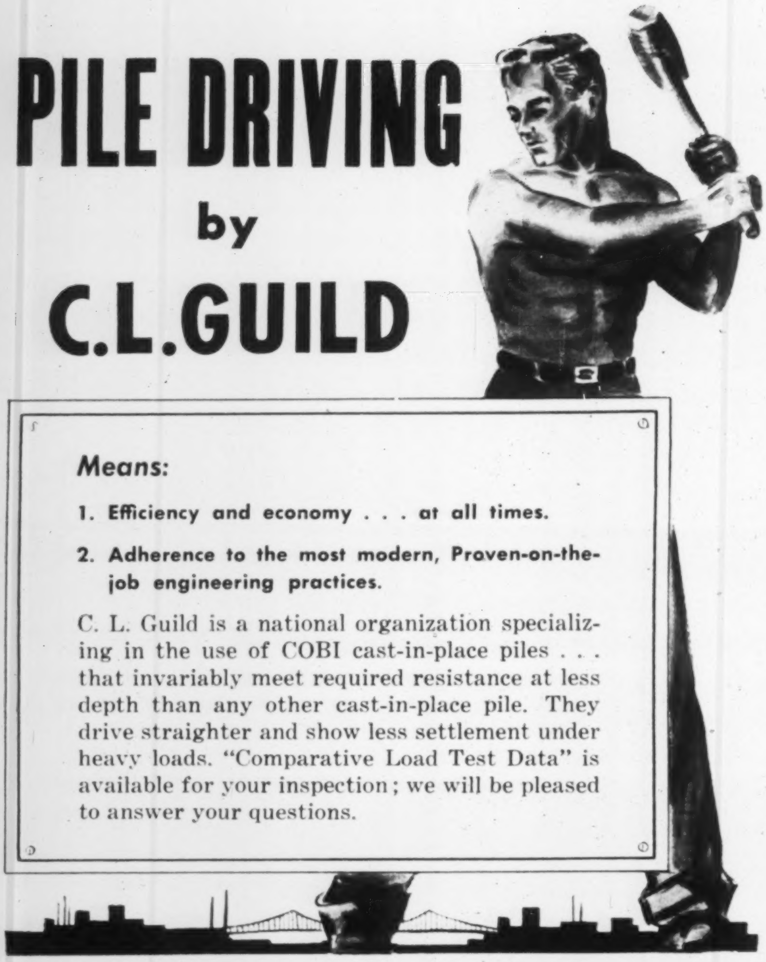

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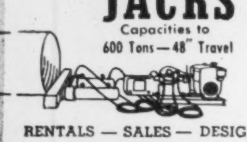

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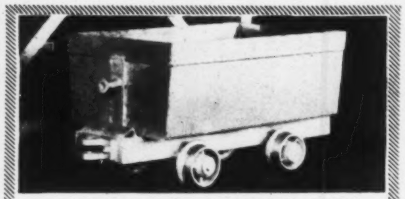

PRACTICAL, RUGGED MINE CARS
Side Dump and Rocker Dump cars, 24" gage. Tunnel cars, 18" and 24" gage. Various capacities. Ask for Bulletin No. 18.

MAYO
MAYO
TUNNEL AND MINE
EQUIPMENT
Lancaster, Penna.

. . . Trial and error

specific gravity requirements for medium and coarse aggregate was shipped without further processing, in open hopper cars in summer and closed hopper cars in winter. Ore retained on the 3-in. screen, together with ore not meeting the specific gravity requirements for coarse and medium gradations, were recrushed, rescreened and made into fine aggregate. The finest fines were discarded and the coarsest fines again crushed and reused. The resulting medium fines met the requirements for the fine aggregate and were shipped in closed hopper cars all year.

• **Mix set by trials**—The contractor hand-mixed numerous trial batches of ilmenite concrete at the mixing plant to determine the best proportions. High-early-strength cement was used to enable the blocks to be handled as soon as possible after casting.

The early mixes were designed with a minimum water content in the belief that if there were much water present, its evaporation during curing would cause undesirable loss of weight. But mixing for production was done with regular 7½-cu yd truck mixers. We found that with the dry mix first attempted, proper mixing and uniform discharging could not be accomplished in these mixers. So the water content was changed and minor variations were made in aggregate proportions.

Admixtures also were tried in an effort to increase density and workability. Eventually, admixtures were eliminated, and both the water and cement content were increased.

The following design mix was finally arrived at to obtain about one cubic yard of dense concrete:

Material	Quantities
Coarse ilmenite ore	1,700 lb
Medium ilmenite ore	2,300 lb
Fine ilmenite ore	2,200 lb
High-early-strength cement	460 lb
Water	27 to 33 gal

This mix, designed primarily for workability and density, gave 28-day ultimate strengths in the range of 3,000 to 4,000 psi, as compared with the specification requirement of 2,000 psi.

• **Mixing problems**—It was found practicable to load the 7½-cu yd truck mixers with no more than 2½ cu yd of heavy concrete per batch. Even then, the first portion of the mix being discharged consisted of separated large aggregate. This initial discharge was deposited in a wheelbarrow and later shoveled by hand into the forms while the test was being placed and vibrated.

The truck mixers were excessively worn: For every 250 cu yd of heavy concrete supplied, one entire set of mixer blades was replaced within the

Picture of rock going places in a hurry

MANITOWOCS SET THE PACE FOR HIGHER PRODUCTION

For steady, big output, you've got to go some to match the performance of a rugged Manitowoc rock shovel. However, increased tonnage and faster cycles aren't the whole story. Manitowocs cost less to operate . . . are "down" less because they're built to take a generation of tough punishment.

Review for a minute these reasons why a Manitowoc on your job returns the most for your investment. Here are sure-footed crawlers with a huge, one-piece carbody mounted right on the crawler frames . . . stays in perfect alignment even after years of hard rock work. Manitowocs have the most simple design of any big machine available, with fewer power-wasting gears; a well-balanced, compact main machinery deck; and heavy, rugged parts that last a long time without fixing. Powerful, reinforced shovel booms and rugged, twin dipper sticks are built to take it. The fast, positive chain crowd "bulls" the dipper into the pile for a full payload. Air controls make operation a cinch . . . let your men put out more per hour. Torque converter power take-off balances power to the load — is easier on man *and* machine.

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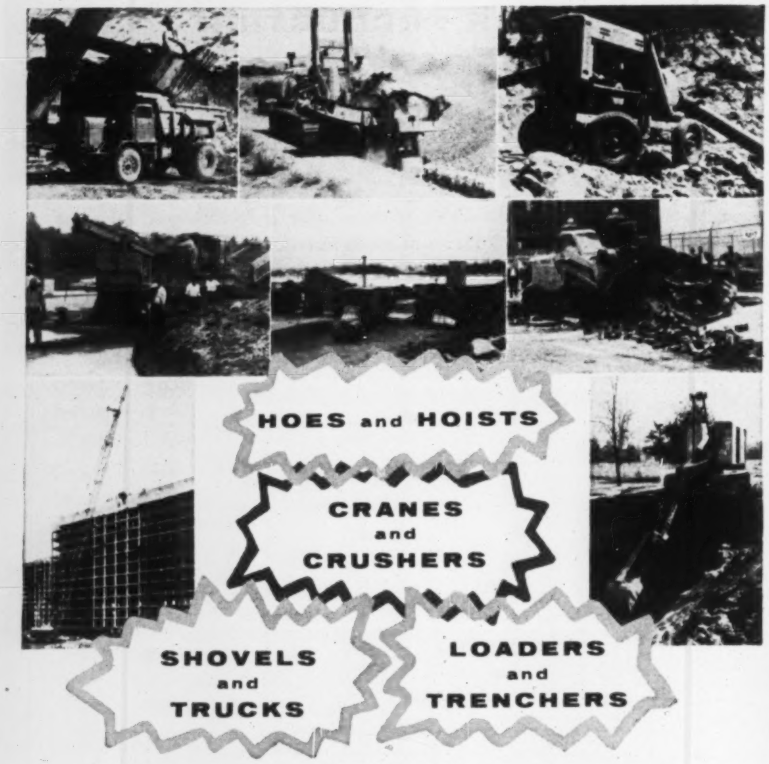

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WAUKESHA powers 'em all

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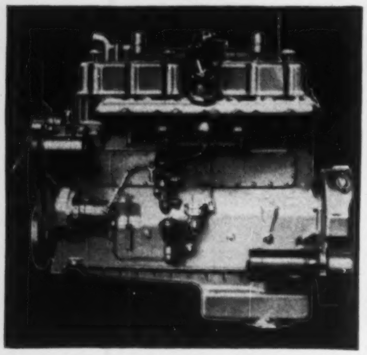
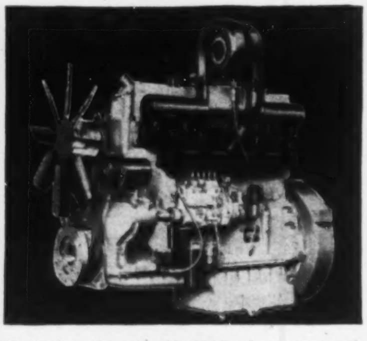

Waukesha gasoline engine—145-GZB—5⅜" x 6"; 817 cu. in.; 240 max. hp. Other models, 50 to 980 hp; bare engine or complete power units.


Waukesha Diesel—WAKDBS (turbocharged) 6¼" x 6½", 1197 cu. in., 400 max. hp. Other models, 50 to 1235 hp; bare engine or complete units; normal or turbocharged.

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN
NEW YORK TULSA LOS ANGELES
Factories—Waukesha, Wisconsin, and Clinton, Iowa
452

... Finding the vibrator

truck. During the job, it was necessary to replace 14 of the auxiliary transmissions that rotate the mixing drums.

Proper vibration of the concrete during placing required special attention. Results at first were unsatisfactory—numerous honeycombs and light weights for shielding blocks were noted.

Several brands of vibrators were tried to find one that would give the best results. The problem was eventually solved with a vibrator 18 in. long, 2¼ in. in diameter and a frequency of 11,000 vibrations per minute.

From 10 to 66 cu yd of heavy concrete were placed daily, depending on weather conditions.

The specifications originally called for seven days of continuous water-spray curing, but this method was unsuitable for outdoor operations during winter months. So a membrane curing compound was used instead. In cold weather, the aggregates and water were heated and the forms were insulated. Curing beds were covered with tarpaulins and space heaters were used to maintain a temperature of at least 50 F for 72 hours, with a minimum of 40 F for the balance of a seven-day period after concreting.

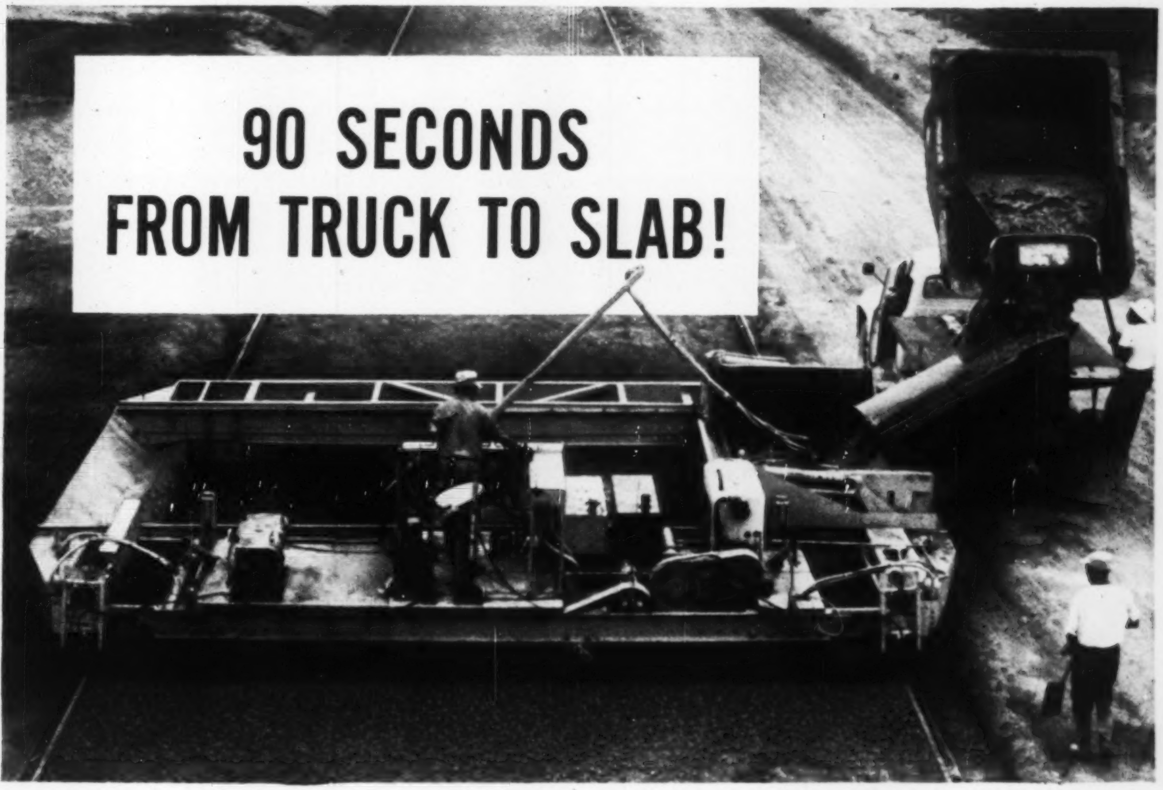
During the early part of the work, the contractor had difficulty obtaining the desired weights of the finished product. Rejections ran as high as 30%. As a result, the contractor arranged with the purchaser to effect a reduction from 245 to 240 lb per cu ft in the minimum acceptable weight requirement.

• **Dimensions controlled**—The specifications also required each shielding block to meet specific dimensional tolerances after seven days of curing. Steel templets were made for checking, and a nylon string was used with them to check variation in the surfaces.

The smallest blocks were held to within ±⅛ in. deviation on all sides. The medium-sized blocks were allowed up to ¼ in. deviation in width, ⅛ in. in height and ½ in. in length.

The long blocks for the roof of the tunnel gave the most difficulty. These were allowed +⅜ in. and −⅛ in. in width, ½ in. in height and ½ in. in length. Experience showed that no significant dimensional changes took place between the first and eighth day after casting. So checking on the first day was permitted.

The technical specifications were developed jointly by Stone & Webster Engineering Corp. and Brookhaven National Laboratory. Contract drawings and supervision of construction were provided by Stone & Webster for Associated Universities, Inc. Precast Building Sections, Inc., New York City, fabricated the shield blocks.



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That's how fast you place 5½ cu. yds. of concrete with the

MAXON DUMPCRETE SPREADER

60 seconds to chute-load the spreader bucket with the fast, flexible Dumpcrete hauling body—15 seconds to spread—15 seconds to move and strike off. Only 90 seconds completes the cycle. Placing rate ranges from 180 to 260 cu. yds. per hour, depending on plant capacity.

Dumpcrete Spreaders place to desired depth; base course, top course or full depth. Widths are adjustable from **11 to 25** feet. Controls are *hydraulic*. Design is simple and trouble-free. Construction is rugged. Applications include highways, airport runways, streets. And Dumpcrete Spreaders handle concrete of the lowest workable slumps.

Maxon developed this new spreader so that contractors could take full advantage of the time and labor-saving benefits of the "central mixing—non-agitated hauling" method. The Dumpcrete Spreader with Dumpcrete Trucks make a high-production team that's been job-proved by some of the nation's top contractors during the past season.

Get full details now. Find out how the complete Dumpcrete method can help you speed work, cut costs and maintain quality on your next paving job. Send the coupon today for new catalogs—or call your Dumpcrete distributor.

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Talking about or working with, the same thing applies. Anything below Royal Blue's performance level is simply unrealistic. Like looking for a cut-price brain surgeon.

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Royal Blue is made from the toughest rope wire ever made—Type 1105—extra high-strength improved plow steel. This pedigree gives to the rope qualities that you can't find in any other rope: exceptional resistance to shock, abrasion, fatigue and impact. Add to these a flexibility that age cannot wither nor hustling fade and you've got a collection of characteristics that make Royal Blue the strongest rope you've ever used.

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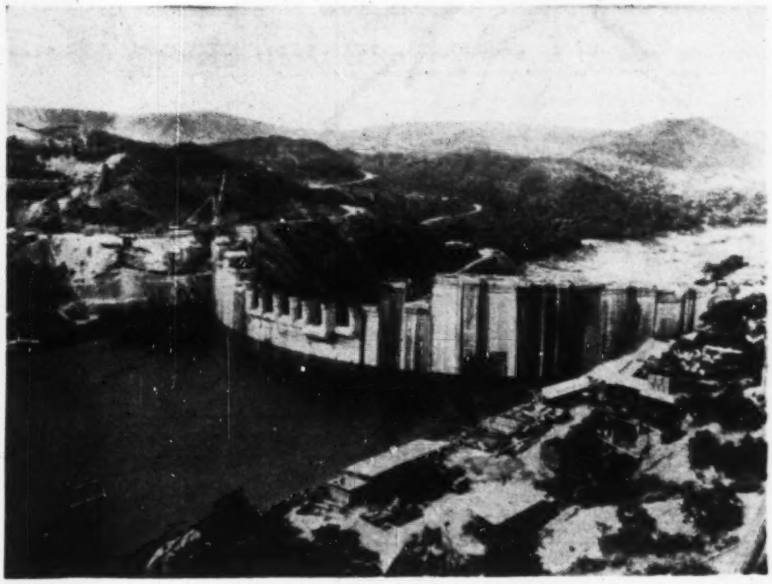

Biggest Lake Fills at Kariba

The once-wild Zambezi River peacefully builds up the world's biggest man-made lake in the Federation of Rhodesia and Nyasaland, while work nears completion on Kariba Dam.

Behind the 420-ft-high concrete arch, Kariba Lake eventually will stretch 175 miles upriver and store 130 million acre-ft of water (ENR Nov. 20, 1958, p. 30). That's over four times the capacity of Hoover Dam's Lake Mead, biggest man-made lake at present.

London TV Center Half Done

The British Broadcasting Co.'s "question mark" TV studio complex will be ready for use by the middle of next year (ENR Oct. 30, 1958, p. 41). One of four main studios will be operating then. Completion of the $25-million project isn't due until late 1961. Still on the drawing boards are plans for the office section, "tail" of the television center.

COMMENT
from the
BUTLER ENGINEER

. . . of rumors replete with conjectures

How news does get around the cement handling industry! And often in such cases the news is cloddy with rumors — often quite unfounded.

The recent discussions of self-unloading cement transports which put the cement directly into your bin are examples. Some rumors had it that these are the complete and perfect solution to all cement handling . . . other whispers said they were entirely impractical.

Well, they are here, they're good and they have a very definite place — with some qualifications.

Perhaps your plant is in an area served by these cement transports. Or if it is not, very probably it soon will be . . . at any rate, you're going to be hearing a lot of rumors, pro and con.

What's the best way of determining what *you* should do to take the utmost advantage of this development? Well, Butler Bin has made very careful investigations and is well prepared to make specific and individual recommendations. Moreover, Butler Bin will provide auxiliary equipment best adapted to your problem.

So why not ask the Butler Engineer? It's as simple as that.

There is a Butler Ready Mix Plant — an HP-85 — on a high pressure schedule supplying concrete for the first Atlas missile base. This is said to be the highest priority construction job in the entire country.

The erection of the HP-85 was started at 9:00 A. M. and finished at 4:00 P. M. the same day. This takes 3 talents: a knowledgeable crew; highly astute management and the top flight portability that only Butler provides.

Shoot at that mark, gentlemen.

The Butler Engineer

BUTLER BIN COMPANY
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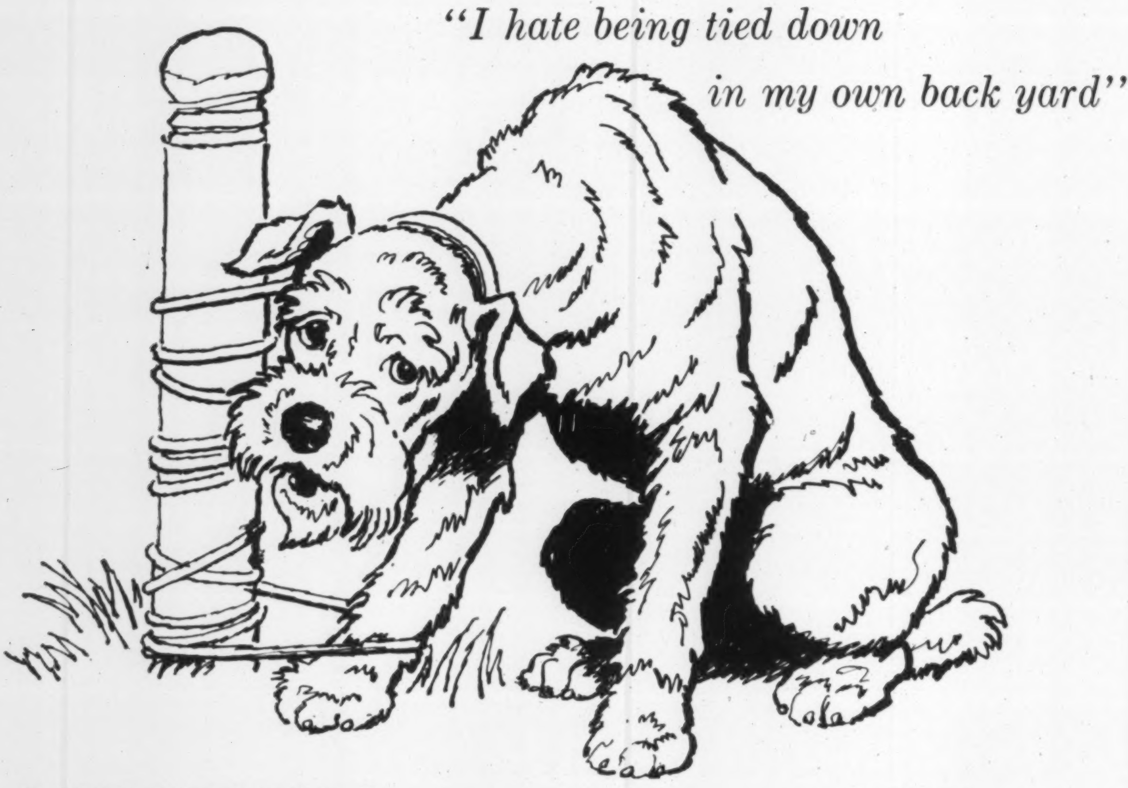
"I hate being tied down
in my own back yard"

DODGE REPORTS uncover more...and better... bidding opportunities right in your own area

Many contractors are tied down by unreliable and incomplete information. They depend on gossip and rumors in locating new building projects, and on invitations to bid. This can be a costly, ineffective way to get business. *Unnecessary*, too. Because daily *Dodge Reports* give you the *facts* you need on bidding opportunities, when you need them.

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Field and Office

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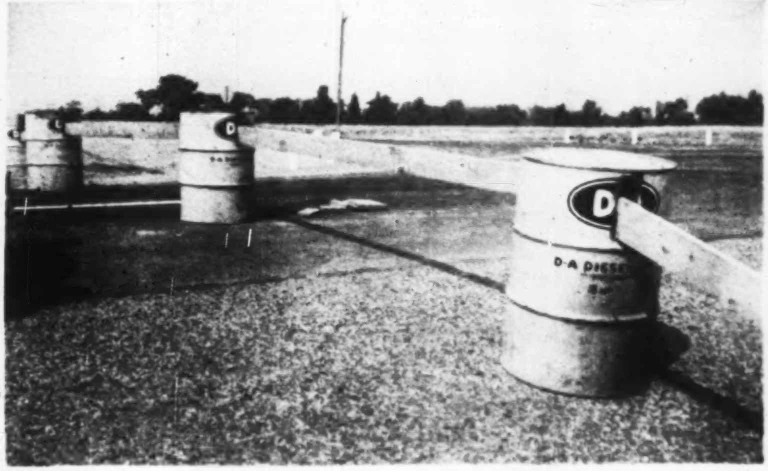
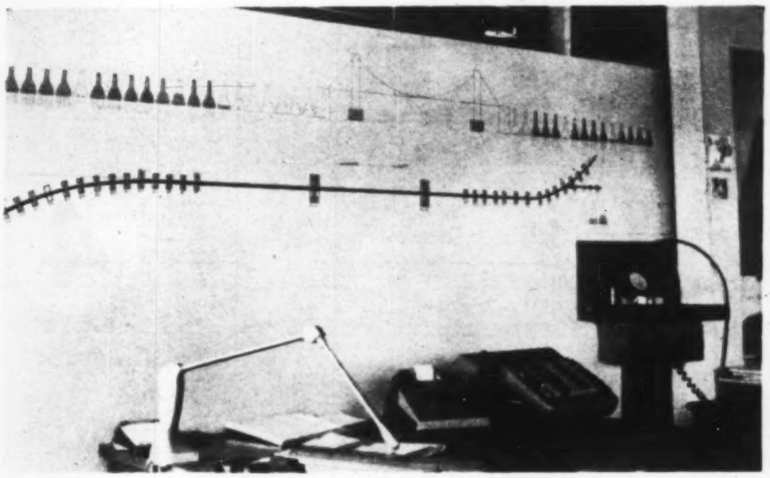


1. Erect a traffic barrier for highway work

Oil drums slotted to take 2-in. planks make a stable, easy-to-handle road barricade. One man can move the horizontal plank to permit passage of trucks—and, unlike the saw-horse supports for barricades, the drums will remain standing without the cross bar. Road flares set on top of the drums are easily visible yet relatively safe from traffic. Drums should be cleaned or filled with water before the slots are burned. Water can also be used to weight the drums.



2. Maintain a graphic record of job progress

This mural in a field office of Merritt-Chapman & Scott keeps job personnel and visitors posted on progress of work on New York's Throgs Neck Bridge. MC&S has the contract for installation of the tower piers and 38 water piers for the $90-million structure. The office staff spent a lot of time digging through work records when explaining job status to visiting officials. Jack Denny, job superintendent, had the drawing put up so the entire picture would be seen at a glance. Vertical lines beneath piers shown in section (top) represent piles installed. Blacked out areas within pier shapes indicate extent of concrete placement. Blacked out piers in plan view indicate completion and acceptance of various piers.

(*Field and Office continued p. 58*)

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for CUTTING STEEL CABLE and WIRE ROPE use the STEEL CABLE CUTTER

The jaws in this shear-action, clean cutting STEEL CABLE CUTTER are notched to lock the cable in during cutting action to minimize crushing. For cutting soft or hard steel cable or wire rope up to ¾".

for CUTTING CHAIN use the HARD CHAIN CUTTER — 590HC

The right way to "cut" hard chain, alloy and case-hardened tempered spring wire and case-hardened bolts and screws is to crush (not cut) them with the center cut, round edge action of this PORTER HARD CHAIN CUTTER. Cuts one side of link at a time to prevent damage to tool. Capacities up to ½".

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Bricklaying is so routine that an experienced contractor can almost predict the hour that the last brick will be put in place. For this very reason, dangerous conditions can be overlooked.

That's why alert contractors like to see the American Mutual Safety Engineer on this or any kind of job before ground is broken. This AM man's extensive experience on construction operations qualifies him to serve as safety consultant to the contractor and his job superintendent. After a study of the project is made—during which potential hazards are considered—this AM man suggests safety measures for the protection of the workers and equipment.

As a result, these specialized services help the projects go along smoothly to meet their scheduled completion date. The contractor, by reducing accidents to a minimum, lowers his workmen's compensation insurance costs—which, in turn, puts him in a better bid position on future contracts.

Why not ask the *friendly* AM *man* to demonstrate the cost-cutting effectiveness of American Mutual's safety counseling service? While he's at it, let him show you how he can fill all your casualty insurance needs and save you money in the process! American Mutual Liability Insurance Company, Dept. EN-6, Wakefield, Massachusetts.

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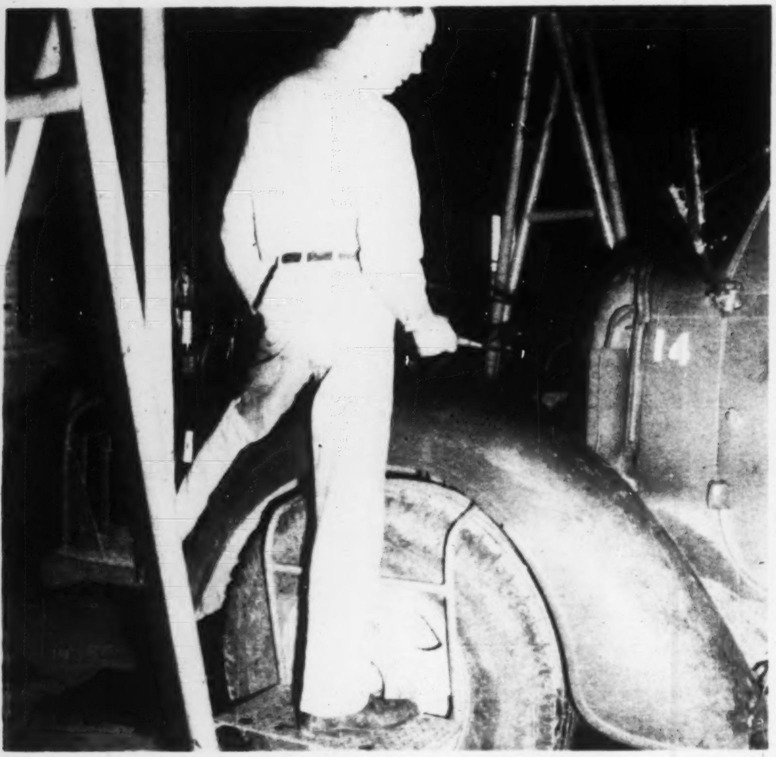
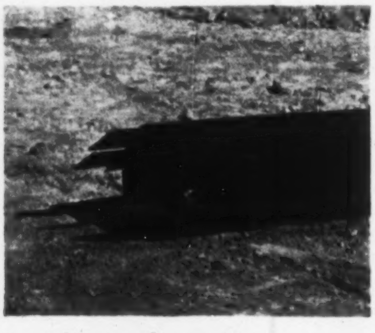


3. Gain safe, convenient access to truck motors

An easy-to-make step hooks over front truck tire to put the motor within convenient reach of mechanic. Clark Sherwood, Houston trucking contractor, made the frame out of ½-in. bars and the step out of diamond plate. The bars were about 4 ft long before they were bent. The step is approximately 10x20 in. Horizontal bar at top of rim stiffens the frame and serves as a hand hold for placing and removing the step.

4. Reinforce a pile top

C. W. Blakeslee of New Haven had trouble driving thin-wall pipe piles through compacted fill because the hammer kept buckling the pipe at the driving head. A standard inverted point used on the wrong end of the pile solved the problem. When slid over the head of the pile the point reinforced the shell and helped distribute the hammer impact. One point lasted for 30 or more piles.



5. Align pile sections

When welded splices are required on cylindrical piles, this idea can save time and money. Six short pieces of bar stock are welded to the inside of the top section. Bars have tapered ends to facilitate sliding them into lower pile section. The top and bottom pile section are held in alignment and a single butt weld joins them. With a sleeve, it takes two welds, one at each side of the sleeve flange.

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So next time you order, ask for pencil and ink drafting films of "Mylar". . . *safeguard your investment* in drafting time and labor.

If you would like samples for testing, we will ask manufacturers of drafting film of "Mylar" to send you a sample. Write E. I. du Pont de Nemours & Co. (Inc.), Film Dept., Room EN-8, Wilmington 98, Delaware.

*"Mylar" is Du Pont's registered trademark for its brand of polyester film.

"Mylar" resists absorption of moisture and liquids due to accidental spillage.

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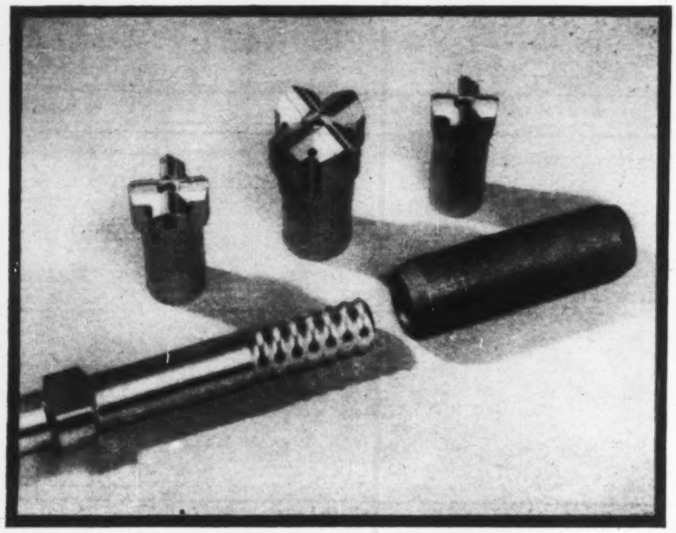
POLYESTER FILM



Here's proof Coromant rope-thread bits and steels SAVE TIME AND MONEY

"Up to double the footage between sharpenings!"
"Premature rod breakage is almost non-existent!"
"40% more usable life—more resharpenings!"
"Bit and rod life are well above average!"
"Uncouple by hand all the time!"
"More rigid—drills straighter holes!"*

**Names of men quoted available on request*

The comments above are actual quotes from project managers, job superintendents, and drill superintendents who have tested new Coromant rope-thread bits and steels. They've learned, on-the-job, the benefits they—and you—can expect!

For example: The new rope-thread (only two turns per inch) holds tight in use, yet permits hand uncoupling. Reports show that the time saved results in more footage drilled per shift. Bit footage is well above average too, with less loss of carbide inserts. Prime quality ore plus nickel-chrome alloy permits cold-rolling from billets for greater strength, life and rigidity. And only with Coromant rope-thread steels can you re-thread without heat treating, too. Do it yourself, or at any nearby machine shop.

Want to know more? There's no obligation on your part, but we'll be glad to help where we can. Just call your nearest Atlas Copco Office, or write to us at Dept. ENR-7.

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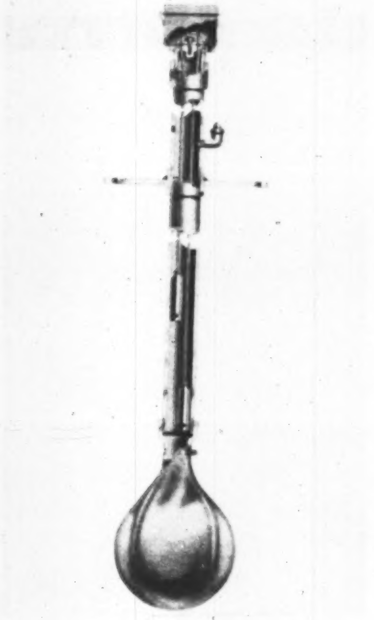

Floatless Pump Control Has Sealed Electrodes

Rising and falling sewage or drainwater in a wet well make and break electric contacts in a new floatless pump controller, but never touch the electrodes. The electrodes are sealed in a tube with an electrolyte that rises and falls with the fluctuations of the liquid outside.

Advantages claimed for the controller: electrodes can't become coated with an insulating layer of grease, oil or soap; or exposed to corrosive waste water.

Operation of the controller is simple. Liquid rising in the wet well applies hydrostatic pressure on a flexible bulb at the bottom of the tube containing the electrodes. This forces the electrolyte to rise. The electrolyte makes and breaks circuits, activating the pump.

Minimum low-water setting is 18 in. Drawndown range is 6 in. to 7 ft. The electrolyte recommended is a water solution of copper sulfate.

Five models are available: Y-56, single pump control; Y-57, two-pump control or single-pump control with high-water alarm contactor; Y-58, two-pump control with manual transfer switch for pump alternation; Y-59, two-pump control with automatic alternation; Y-60, two-pump control; with automatic alternation and a high-water alarm contactor. Chicago Pump Co., 622 Diversey Parkway, Chicago 14, Ill.

400-Ton Stator Elevator Has 40-ft Vertical Lift

The jacking and cribbing method of installing heavy generators can be eliminated through the use of a 400-ton stator elevator.

The elevator has a box-shaped framework. Load carrying beams are pushed up and secured to the columns. Jacking beams are then released, pulled up by running the jacks in reverse, and the cycle is repeated.

Maximum jump per cycle is 30 in. Lift columns come in either 30 ft or 40 ft lengths. Loads may be lifted on the elevator's platform or suspended under the platform by straps. Worm gear jacks are rated at 100 tons capacity each. Aycock, Inc., P. O. Box 277, Camp Hill, Pa.

Cooling Towers Use Squirrel Cage Blowers

The manufacturer promises quiet operation for a new line of water cooling towers that use squirrel cage blowers rather than propeller fans.

Sixteen sizes are available. Capacities range from 5 to 360 tons; heights, from 5 ft 5 in. to 7 ft 8 in., exclusive of foundation beams.

All towers are constructed of heavy gage steel, hot dipped galvanized after fabrication. Drift eliminators and decking are made of construction heart grade redwood.

Filtered-air inlets are available for towers to be used in high-contamination atmospheres. Evaporative type towers are also available. Binks Mfg. Co., 3114 Carroll Ave., Chicago 12, Ill.

Use Any Kind of Paper With This Office Copier

The Xerox 914 office copier prints finished permanent copies of any written, drawn, typed or printed document on any ordinary white or colored paper, offset paper master material, card stock or vellum.

The unit requires no sensitized or treated papers and no exposure or developing adjustments need be made. The desired number of copies are made by setting a dial. Books or magazines can be copied as easily as manuscripts. Production rate: six copies per minute.

The 914 reproduces all colors in black. Copies are printed size for size. Originals may be opaque documents and letters, thin carbons, second generation copies or transparencies. Haloid Xerox Inc., Rochester 3, N. Y.

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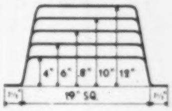
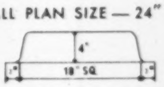


OVERALL PLAN SIZE — 24" x 24"



OVERALL PLAN SIZE — 22" x 22"

Interchangeable GRID domes are delivered to the job site in quantities large enough for any project. No charge is made for normal wear and tear, including necessary screw holes for sleeves, inserts, etc. All GRID domes have the same slope, for uniform appearance.

*Among the many buildings utilizing GRID SYSTEM construction are: Lexington Junior High School, Lexington, Mass.; Administration Building, Library Building and Classroom Building, Furman University, Greenville, S.C.; Pan American Airways Hangar #14, Idlewild Airport, N.Y.; Off-Street Parking Garage, Post Office Sq., Boston, Mass.; Prudential North Central Home Office Building, Minneapolis, Minn.

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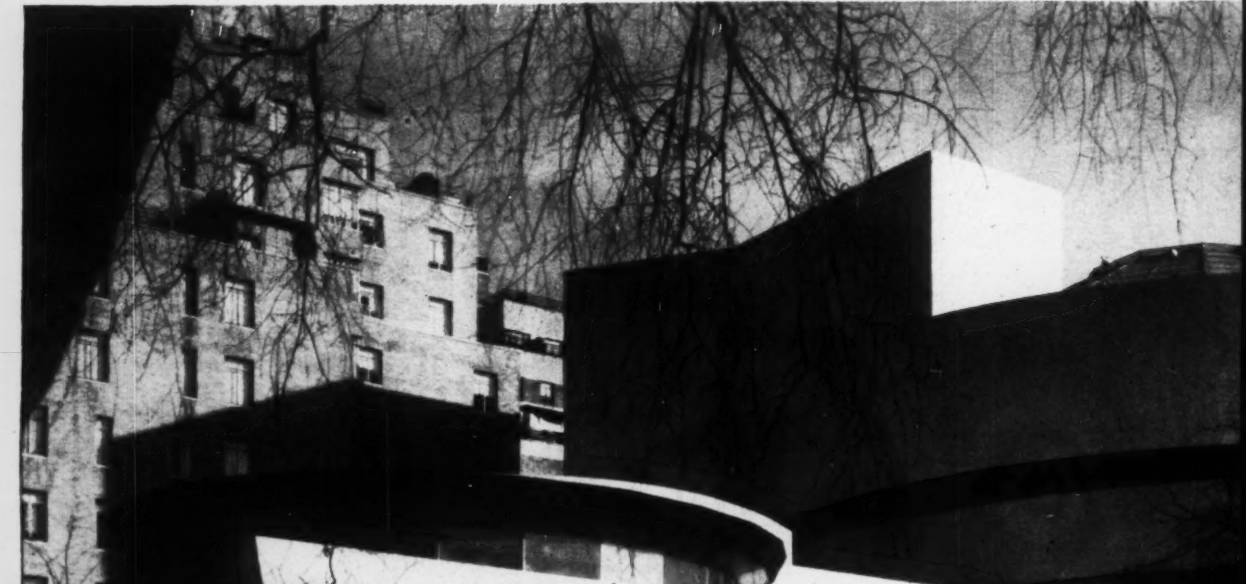
"...never any choice but for concrete forms



PHOTOGRAPH BY EZRA STOLLER

fir plywood on Guggenheim Museum"

says Charles Spero, job superintendent, Euclid Contracting Corporation

SOLOMON R. GUGGENHEIM MUSEUM
LOCATION: New York City
ARCHITECT: Frank Lloyd Wright
GENERAL CONTRACTOR: Euclid Contracting Corp.
New York City

Once again, fir plywood's superiority as a form material is dramatically demonstrated—on Frank Lloyd Wright's Solomon R. Guggenheim Museum, New York City. Plywood was used almost exclusively for the form work on all walls, on the curving ramps, and even on the 4-foot diameter columns.

"The job could not have been done without plywood," says Superintendent Spero. "Because everything is curves here, of constantly changing radii, there was never any other choice. It's smoother, certainly more durable, and cheaper in the long run."

Other advantages cited by Mr. Spero: handling ease, a minimum of cutting, a reduction of finishing time, very little backing required.

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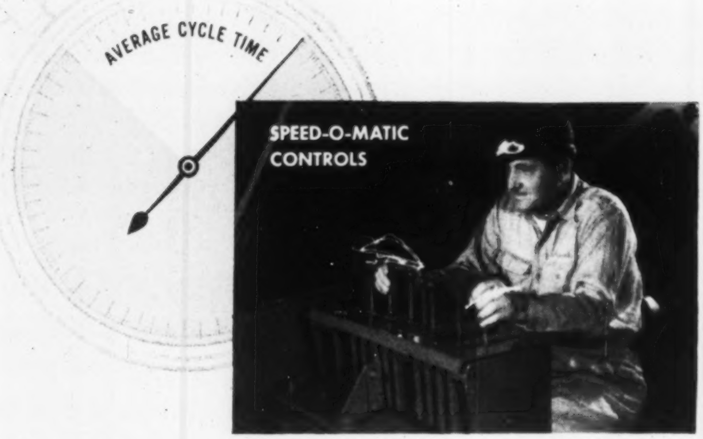
Speed-o-Matic controls save seconds on every cycle!

True power hydraulic control system converts lost time into dollars

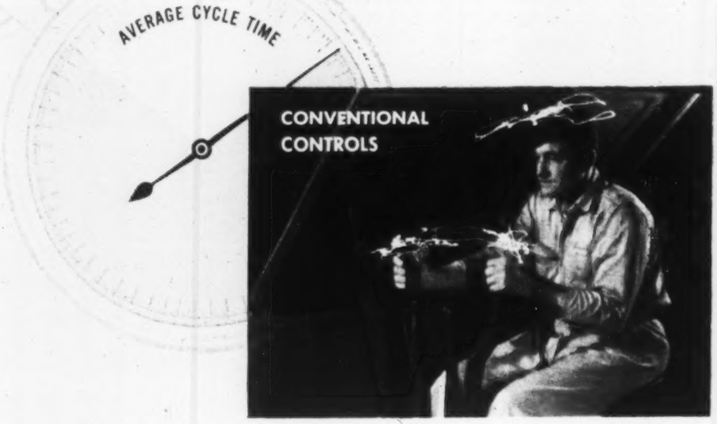
You're really on fast time when you clock Speed-o-Matic . . . actually gaining up to 25% more cycles per working shift. You make important production time savings all day long over outdated manual or booster long-throw controls that require extra linkage adjustments . . . that work against the operator, compounding end-of-shift fatigue.

A Link-Belt Speeder operator is more relaxed, more confident at the short-throw, easily accessible controls. He nudges a lever, flicks his wrist and *instantly* the powerful machine responds with oil-smooth assurance and agility. He feels it through his fingertips — working — without jump, jerk or lag. Oil under pressure does the brute work; he supplies the coordination.

Speed-o-Matic is standard on the Link-Belt Speeder line of performance-plus shovel-cranes. Find out for yourself why these machines have more profit-winning features, *why they produce more.* See your distributor, or write LINK-BELT SPEEDER CORPORATION, Cedar Rapids, Iowa.



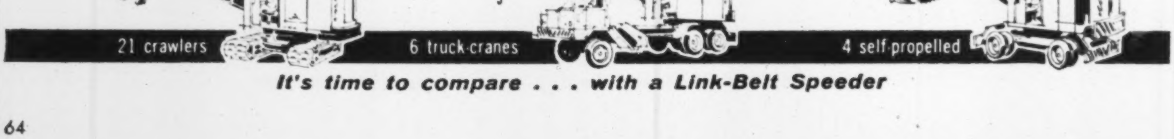
TIME-LIGHT CAMERA SHOWS how Link-Belt Speeder operator saves seconds on each cycle, thanks to Speed-o-Matic power hydraulic controls. He doesn't reach, he doesn't tug. Just easy, "key-board" operation. Short-throw levers boost output, conserve operator strength.



TIME-LIGHT CAMERA SHOWS operator caught in the act with conventional controls. He must move long-throw levers for each machine function throughout each cycle. Through the day they rob him of valuable seconds . . . drain his vitality . . . cut his daily output.

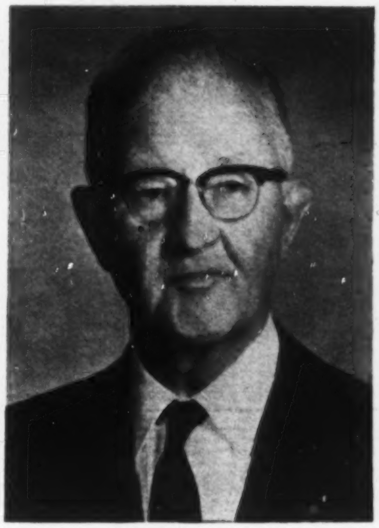
110-59N

LINK-BELT SPEEDER



It's time to compare . . . with a Link-Belt Speeder

William Denny



George Drake

Two Receive Moles Award

William Denny, executive vice president of Merritt-Chapman & Scott Corp., and George Morgan Drake, president of Johnson, Drake & Piper, Inc., are the 1960 winners of the Moles award for outstanding achievement in construction.

They are the 20th pair of honorees since the award series started in 1941. The honors are given once a year to one association member and one nonmember.

Mr. Denny has been Merritt-Chapman & Scott's executive vice president in charge of construction since 1953. He is currently supervising the Glen Canyon Dam project in Arizona, the Priest Rapids Dam in Washington state and the main generating plant of New York's Niagara Power Project.

He joined Merritt-Chapman & Scott in 1927 after nine years of bridge construction experience in Kansas.

Mr. Drake, the non-member winner, is both president and general manager of Johnson, Drake & Piper, Inc., Minneapolis. He helped form the company in 1914. The firm is supervising the giant Air Force installation in Labrador and is building highways, buildings, bridge foundations and dams in Vietnam and Central America. It was also co-sponsor for construction of the 41 miles of West Delaware tunnel for the New York City water supply.

During the construction of the Milwaukee Road main line, Mr. Drake, then a young boy, worked as a teamster freighting dynamite and commissary supplies across the Dakota Badlands.

Orowan Awarded Medal

Egon Orowan, George Westinghouse Professor of Mechanical Engineering at MIT, was awarded the Bingham Medal by the Society of Rheology. He was honored for his work in the behavior of solids, particularly his contribution to the understanding of the phenomena of plastic flow.

A native of Budapest, Hungary, Professor Orowan studied at the University of Vienna and the Technical University of Berlin, where he obtained an engineering diploma and a doctor's degree in applied physics.

He returned to Budapest after graduation and directed the Krypton Gas Works of the United Incandescent Lamp and Electric Co.

In 1937 he moved to England where he was research associate in the University of Birmingham's physics department. From 1939 to 1950 he headed the metal physics group in the Cavendish Laboratory at Cambridge University. He came to MIT in 1950.

In 1946 Professor Orowan received the Thomas Hawksley Award for his theory of rolling of metals. The honor was given by the Institution of Mechanical Engineers of London.

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FLUIDS

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Dealers in all principal cities.

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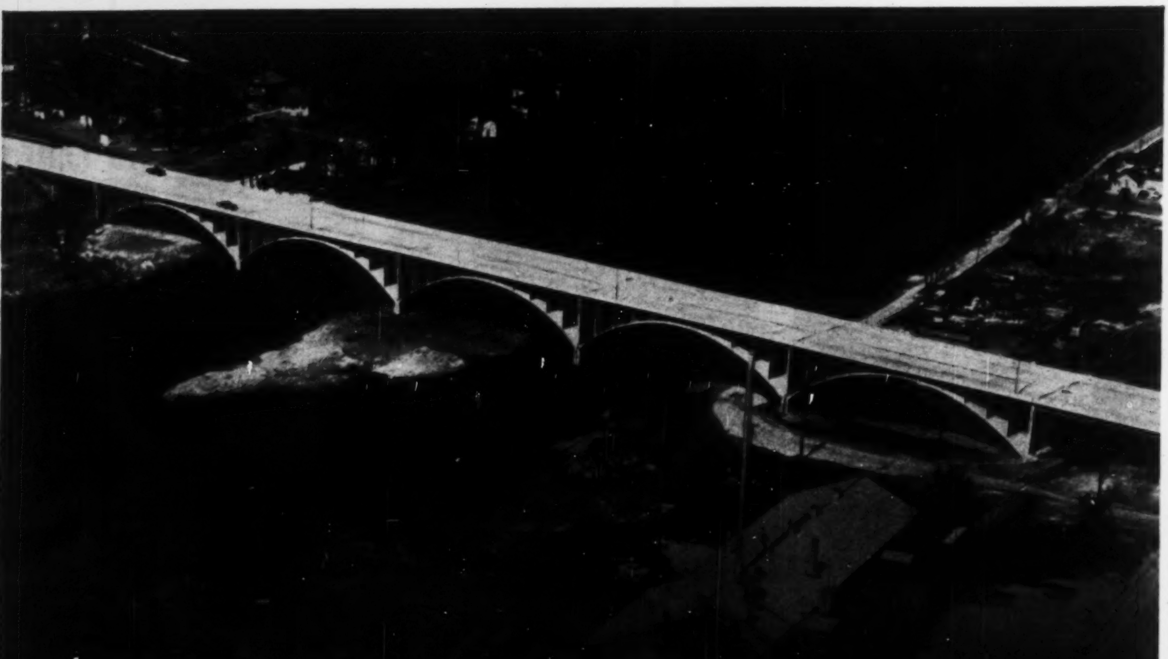

Greater Structural Beauty with

Reinforced CONCRETE

Northern Illinois Toll Highway Bridge over Fox River Valley, Aurora, Illinois
Owner: The Illinois State Toll Highway Commission
Designing Engineers: Vogt, Ivers, Seaman & Associates, Cincinnati, Ohio
Consulting Engineers to the Commission: Joseph K. Knoerle & Associates, Baltimore, Md.
General Contractor: CKG Associates, Elgin, Illinois

The Northern Illinois Tollway Bridge across the Fox River at Aurora is a picture of grace and beauty. Here, designers wanted to enhance the entire toll highway project with a monumental-type structure. Reinforced concrete, because of its greater design freedom and construction flexibility, was used to achieve the intricate and unusual design of thin braced barrel arch spans.

Reinforced concrete is the logical, economical solution to every type of bridge design. Complicated curves and unusual shapes are easily obtained. It is lower in first cost, requires less maintenance, and is highly resistant to wind, shock, and quakes. In addition, materials and labor are readily available from local sources—your project starts on time and finishes on schedule.

Impressive design of this outstanding open spandrel structure features five reinforced concrete braced barrel arches only 14 in thick. Each arch spans 178 ft and is on a circular radius of 133 ft.

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REINFORCING
STEEL INSTITUTE
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Concrete Reinforcing Steel Institute
38 South Dearborn Street
Chicago, Illinois

Obituaries

Peter F. Connolly Dies; Boston General Contractor

Peter F. Connolly, 76, 1958 recipient of the Moles award and president and founder of the Peter F. Connolly Co., Osterville, Mass., is dead.

Mr. Connolly was known for his construction work on subways, major water tunnels and bridge foundations. One of his most recent projects was the construction of pneumatic caissons for the railroad bridge over the Harlem River in New York City. He also built water works in Cleveland and Akron, Ohio.

Mr. Connolly entered construction in 1902, working on the East Boston Tunnel. Between 1902 and 1908 he continued in Boston construction and was involved in building the Harvard stadium and the Washington Street subway.

Mr. Connolly founded his own construction firm in 1908. During the early years the company was known for its work on highways in Maryland and New York.

Stanford H. Sword, 54, district engineer for the Department of Forests and Waters. He supervised the maintenance and operation of the Schuylkill River Desilting Project and the Delaware River Canal. The repair of a dam at Williamsport, Pa., was his most recent project.

Frank Webster, 72, former Tennessee Highway Commissioner and retired Tennessee Valley Authority engineer. Mr. Webster joined the highway department in 1917 as assistant engineer and rose to commissioner. In 1934 he began working for the TVA where he directed the highway and railroad relocation program during its construction phases. After retirement, Mr. Webster entered private consultant work.

S. O. Southall Jr., 59, senior resident engineer of the fourth division of the North Carolina Highway Department. He entered the department in 1922 after receiving his civil engineering degree from Virginia Military Institute.

Onie McMullen, 69, retired regional engineer for the Portland Cement Association. After his retirement in 1955 he maintained his own consulting engineering service. Mr. McMullen was a 1916 graduate of the University of Michigan.

Stanley B. Jakiel, 67, general contractor in Buffalo and western New York.

(*Obituaries continued p. 68*)

Schramm 250 Pneumatractor gives you a full 250 cfm of air at no greater cost than most ordinary 210 compressors—plus the added convenience of self-propulsion. That's a 40% bonus in power for operating drifter or extra drills, diggers, drivers, tampers. More work in less time. Available: **gasoline or diesel.**

SCHRAMM'S NEWEST, MOST MODERN AIR COMPRESSOR:

Obsoletes all portable compressors

It's a fact! The compressors you are now using are old fashioned. The new way, the modern way, is to *drive* your air compressor—not push it. Schramm Pneumatractor—250 cfm self-propelled air compressor—newest of the new, gives you greater opportunities to keep operational cost to a minimum and increase profits on any construction job. Now, you can operate ten to 12 tampers, or four or five heavy paving breakers, from one machine—while one driver moves the compressor along with the work. No need to stop work to move or tow machine—every man is more efficient.

Schramm 250 Pneumatractor eliminates the problems of . . .

Downtime—Every man's time is more valuable, since work continues even as the compressor is moved. No "work momentum" lost in picking up again.

Capacity—With Pneumatractor, you get a full 250 cfm of air, not just a fraction of it. More power at the tools.

Maintenance—Pneumatractor is easy to keep in repair. Any engine mechanic can service without special training. In addition, wearing parts are 90% interchangeable between engine and compressor.

Contractors everywhere, large and small, are making the switch to the modern compressor—Schramm Pneumatractor. Why don't you? Get all the information you need from your local Schramm Dealer or write for your copy of Catalog 5845.

See the Yellow Pages for local Sales, Service and Rental of the complete line of Schramm Pneumatractors.

Schramm, Inc.

MANUFACTURERS OF AIR COMPRESSORS

620 North Garfield Ave. • West Chester, Pa.

Consider the money saved when you drive a compressor instead of push it. **It takes an average of 15 minutes and $4 worth of manpower to push compressor ten feet; less than five minutes and 16c to drive Pneumatractor.**

Schramm Air Tools—the tools with extra *guts*. More drop forgings are used in Schramm tools than in other lines. Result: greater strength and resistance to breakage.

COMPACT, POWER-PACKED ACKER TEREDO CORE DRILLS

SPEEDS SOIL SAMPLING

IN A VARIETY OF WAYS:

- Drive Sampling
- Undisturbed Sampling
- Penetration Testing
- Permeability Testing
- Wash Boring
- Driving Casing
- Rock Coring and many more!

Whatever the sampling technique, the Acker Teredo is up to it! Its modern design and host of useful features makes the Teredo the most useful you can buy!

It's ruggedly built, yet compact and light enough to be completely portable. Mount it on skid base, truck or trailer and power it with gasoline, diesel, electric or air motor. It's easy to use — inexpensive to operate!

Write today for Bulletin 30-ENR.

ACKER DRILL CO., Inc.
P.O. Box 830
Scranton 2, Pa.

Over 40 years of experience manufacturing a complete line of diamond and shot core drills, accessories and equipment.

British Theodolite available in America

An Optical Micrometer Theodolite, from Cooke, Troughton & Simms Ltd., Britain's oldest maker of surveying instruments, has been introduced in the United States.

The 9-lb. Model V308 can be read directly to 20 sec. of arc and by estimation to 5 sec. The instrument features brilliance of field of its circle-reading microscope, high magnification of the graduation system and easy reading. The telescope is of the internal-focusing type with a spiral focusing eyepiece.

The V308, complete with spirit levels, optical plummet, centering device and either telescopic or non-telescopic tripod, is packed in a lightweight case.

V308 is a companion to the famed Tavistock Theodolite. Write for information on both.

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ELEVATED FLOOR SYSTEMS FOR COMPUTERS BY

ITEECO

Economy, availability, experience and qualified engineering. Accomo-Dek® by ITEECO is made in steel and extruded aluminum.

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. . . Obituaries

Arthur W. Mall, 64, president and founder of the Mall Tool Co., Chicago. In 1956 he sold his company to Remington Arms Co., Inc., and took over the Crete Equipment Co., Crete, Ill.

Thomas W. Dodds, 82, founder and president of the St. Joseph Structural Steel Co., St. Joseph, Mo.

Richard Hudson, 69, former director of the National Association of Home Builders and chairman of the Association's research institute. He was president of the Skytop Engineering Co., Montclair, N. J., and was a former president of the New Jersey Home Builders Association. Two years ago Mr. Hudson served as a housing advisor in Chile for the International Cooperation Administration under the Point 4 Program. He was also chairman of the International Housing Group and vice chairman of the National Housing Center in Washington, D. C.

Richard E. Schmidt, 93, founder and senior partner of the Chicago architectural firm, Schmidt, Garden and Erikson. Mr. Schmidt designed numerous hospitals and institutional buildings in the Chicago area, among them, the Cook County Hospital. An 1896 graduate of MIT, Mr. Schmidt is the coauthor of "The Modern Hospital."

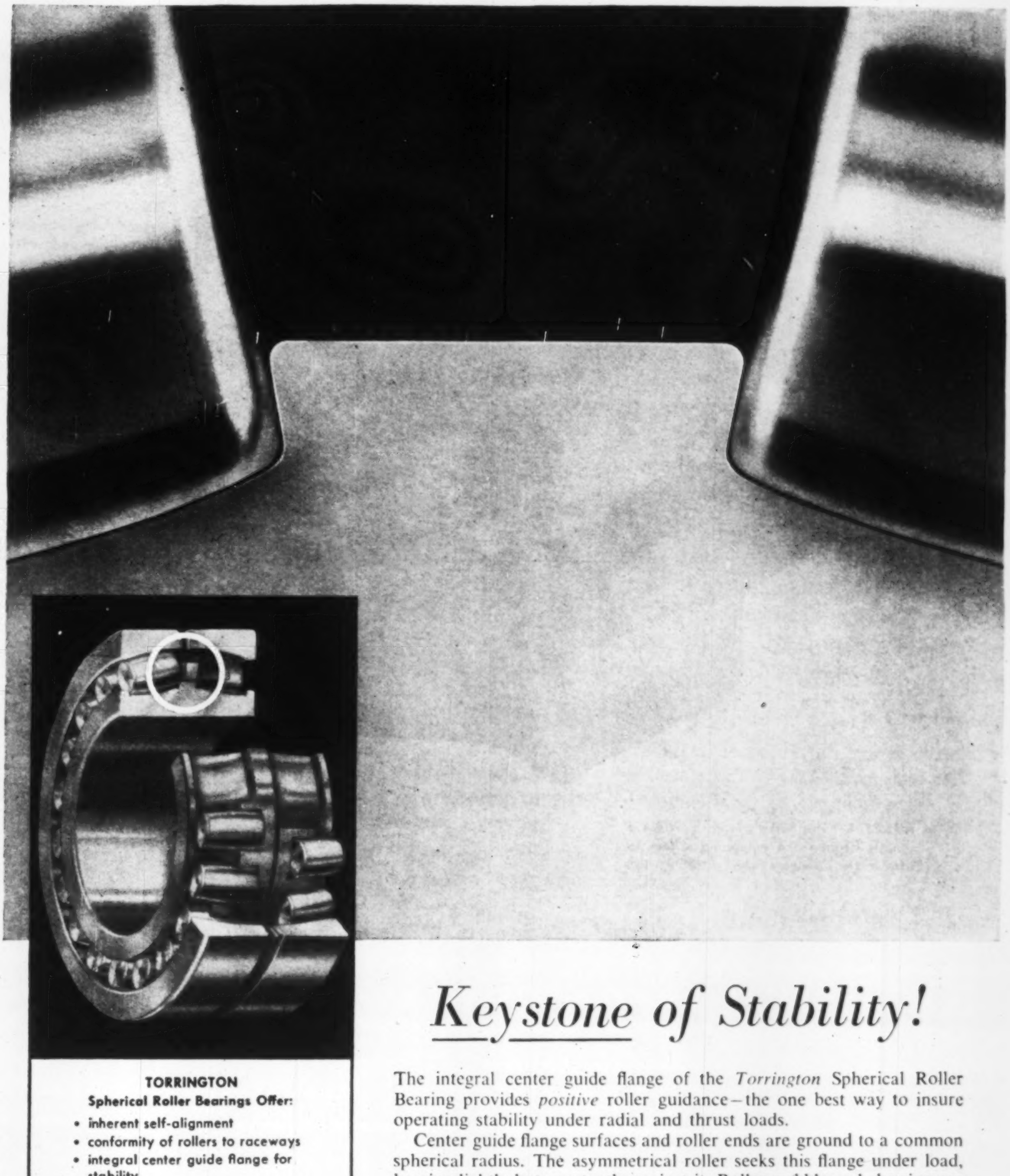
Leonard A. Day, 80, former St. Louis water commissioner. He was employed by the city for 25 years and served as water commissioner for four years. In 1954 he retired as consulting engineer for the Union Electric Co.

Samuel Osofsky, 49, engineer for the California division of highways and specialist in applying automation to the processing of highway research data. Mr. Osofsky graduated from the University of California School of Engineering in 1932 and two years later joined the State's highway department.

Joseph F. Kunesh, 69, retired civil engineer in Seattle, Wash. He lived in Hawaii for 24 years serving for a time as Honolulu city engineer. From 1948 to 1951 Mr. Kunesh was dean of the College of Applied Science at the University of Hawaii.

William E. Taylor, 78, contractor and builder in Toronto for the past 50 years. He was a civil engineering graduate of the University of Toronto.

Howard E. Evans, 54, city engineer for Fort Collins, Colo. A graduate of Colorado State University, Mr. Evans was associated with the city for 14 years.



TORRINGTON
Spherical Roller Bearings Offer:

- inherent self-alignment
- conformity of rollers to raceways
- integral center guide flange for stability
- positive roller guidance
- land-riding bronze cages
- maximum radial and thrust capacity
- controlled internal clearance
- electronically selected rollers
- even load distribution
- long, dependable service life

Send for new Torrington Spherical Roller Bearing Catalog #258.

Keystone of Stability!

The integral center guide flange of the *Torrington* Spherical Roller Bearing provides *positive* roller guidance—the one best way to insure operating stability under radial and thrust loads.

Center guide flange surfaces and roller ends are ground to a common spherical radius. The asymmetrical roller seeks this flange under load, bearing lightly but constantly against it. Roller wobble and skewing are eliminated, and stress concentrations leading to early failure are avoided. Bearing operation is cooler, quieter and smoother.

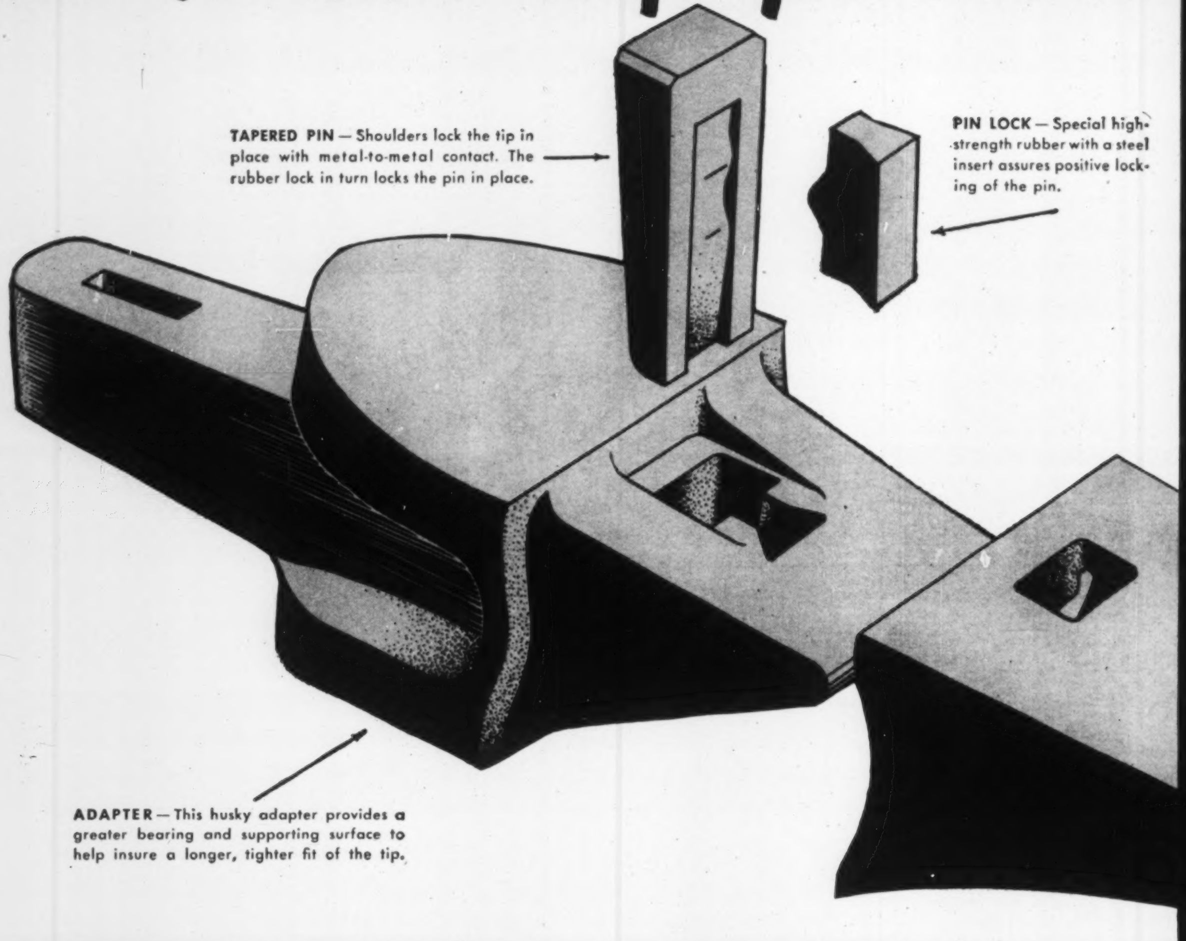
The integral guide flange is adapted from the same principle used in the design of Torrington Tapered Roller Bearings. It is an engineering refinement, based on experience in all types of applications, that insures outstanding performance in your equipment. **The Torrington Company, South Bend 21, Ind.—and Torrington, Conn.**

TORRINGTON BEARINGS

Every Basic Type of Anti-friction Bearing

SPHERICAL ROLLER • TAPERED ROLLER • CYLINDRICAL ROLLER • NEEDLE • BALL • NEEDLE ROLLERS • THRUST

How AMSCO helps you MOVE



TAPERED PIN — Shoulders lock the tip in place with metal-to-metal contact. The rubber lock in turn locks the pin in place.

PIN LOCK — Special high-strength rubber with a steel insert assures positive locking of the pin.

ADAPTER — This husky adapter provides a greater bearing and supporting surface to help insure a longer, tighter fit of the tip.

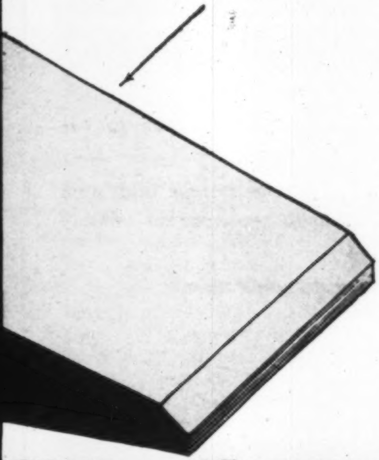
UNBEATABLE TEAM!

AMSCO CAST MANGANESE STEEL DIPPERS

Installed as original equipment on many leading makes of power shovels. Cast of manganese steel —"the toughest steel known"—a material which provides as much as a ten-to-one advantage in lasting power over other steels, under the abuse of severe impact and abrasion. Sizes from ¾ cu. yd. to 9 cu. yd. capacity. See your power shovel distributor, or write us for booklet . . . "Amsco Manganese Steel Power Shovel Equipment".

MORE TONS PER DOLLAR

REVERSIBLE TIP—Enables you to get longer digging life while maintaining sharpness.



AMSCO Simplex 2-Part Reversible Dipper Tooth

- **EXTENDS DIGGING LIFE**
- **STAYS SHARP**
- **EASY TO REPLACE**

Now you can save hours of costly shovel downtime... by using this new Amsco Simplex 2-Part Tooth.

Simplex tips are quickly reversible to give added tip life while retaining sharpness. And when teeth eventually become worn, just knock out the retaining pin and replace with a new tip.

Simplex adapters fit this new 2-part tooth to *any* Amsco dipper or backhoe. And because Amsco makes both dippers and dipper teeth, you can be sure of proper fit between the adapter and shovel lips.

Cast of a new alloy especially developed for this service, the Amsco Simplex design is backed by over 50 years of experience in producing dippers and dipper teeth for the most rugged digging conditions.

Ask your power shovel distributor to supply you with these extra-long-wearing Simplex 2-part teeth... now!

Write us for complete descriptive bulletin on Amsco Simplex teeth, giving information on sizes and types available.

AMSCO'S NEW 2 PART
reversible point dipper tooth
The Amsco Simplex

AMSCO HARDFACING FOR BUILD-UP AND REPAIR

Add extra service life at low cost to dippers, dipper teeth, hammers, augers, etc.... with Amsco Hardfacing. Complete line of hardfacing electrodes available through your Amsco welding distributor. Or write us for condensed catalog and price list on "Amsco Hardfacing Alloys".

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American Manganese Steel Division • Chicago Heights, Ill.

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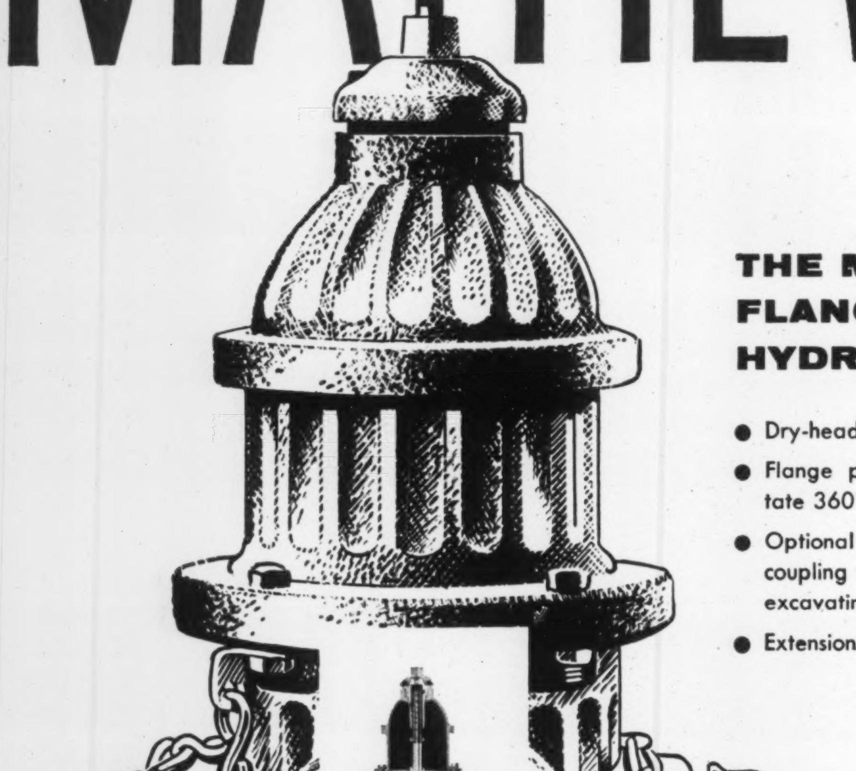
In Canada: Joliette Steel and Manitoba Steel Foundry Divisions

Welding products distributed by Canadian Liquid Air Co., Ltd.

MATHEWS



THE MATHEWS FLANGE BARREL HYDRANT

- Dry-head construction
- Flange permits nozzle section to rotate 360°
- Optional breakable flange and stem coupling permits replacement without excavating
- Extension section available

Meet all requirements of AWWA specifications

Bell, flange or mechanical-joint pipe connections; conventional or "O" ring packings

R. D. WOOD COMPANY

Public Ledger Building, Independence Square
Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

Twin Bridge 14% Under Estimate

These twin cantilever deck trusses with fairly deep curved bottom chords to cost $1,144,589, are part of a four lane by-pass of the business district of Elyria, Ohio, on relocation of State Rt. 57 by the Ohio Department of Highways. E. L. Toberen, Division 3 Deputy Director, Ashland, is the engineer, E. Fred Rule is construction engineer, D. H Overman, Columbus, engineer of bridges; H. H. Hawley, assistant engineer of bridges—design.

The design is a departure from the continuous concrete slab, and continuous steel beam or plate girder designs now principally used in Ohio bridge construction.

Contract to National Engineering & Contracting Co., Cleveland, bidding jointly with The Great Lakes Construction Co., was 14% under the engineer's estimate and breaks down like this:

	Amount	% of Total
Twin bridge over the Black River	$859,171	75.1
Roadway	144,968	12.7
Reinforced portland cement concrete pavement	107,601	9.4
Drainage	16,649	1.4
Traffic maintenance, layout stakes and industrial insurance	16,200	1.4
Total	$1,144,589	100.0

Each bridge of the dual structure will have spans of 35-84-210-84-35 ft, for a total of 448 ft center to center of abutment bearings, a width of 38.25 ft between parapets, and a roadway width of 34 ft 10 in. Two 12-ft traffic lanes will be carried on each bridge.

Cement content per cu yd of concrete is not less than 6.5 sacks for Class C and the Class D reinforced concrete pavement, and 5.5 sacks Class E.

Minimum wages include: crane & power shovel operators $3.89; bulldozer operator, $3.64; carpenter, $3.80; reinforcing steel placer, $3.89; common laborer, $2.93.

The bidding went like this:

1C	National Engr. & Contr. Co. and The Great Lakes Constr. Co., Cleveland, O	$1,144,589
2	Horvitz Co., Cleveland, O	1,164,058
11	Dandrea & Nardini Constr. Co., Lorain, O	1,523,852
EE	E. L. Toberen, State Hwy Dept., Ashland, O.	1,331,000

Bids: 6-30-59 Items	Unit	Quantity	Unit Prices 1C	 2
Roadway				
Excavation, method B	cy	163,100	$0.70	$0.95
Subgrade, compacted	sy	8,440	0.07	0.05
Trees & stumps remov	ea	424	35.00	50.00
Water	Mgal	799	1.00	4.00
Centerline ref monument	ea	6	5.00	20.00
Grd rail, stl beam, deep standard type	lf	1,346	2.70	2.60
barrier type	lf	87.5	5.30	4.20
Seeding & protection	sy	26,215	0.08	0.07
Commercial fertilizer	t	2.4	90.00	90.00
Sodding	sy	441	1.00	1.00
spec berm & slope prot	sy	407	1.25	1.25
Fence, type C	lf	1,275	2.70	3.00
gate, type C	ea	1	400.00	360.00
Rdwy electric standard	ea	23	145.00	145.00
Drainage				
Excavation, structural	cy	3	25.00	6.50
Storm sewers, cl B, 12"	lf	220	7.50	5.00
under appr or pavemnt	lf	242	6.00	7.00
Underdrain, 6"	lf	2,045	1.70	2.30
CMP, helical perf, 6"	lf	1,595	3.50	3.00
plain, 8" outlets	lf	110	3.50	3.20
pipe specials, 6"	ea	12	1.00	10.00
Inlets, std #2-6, mod	ea	4	320.00	370.00
#2-10, mod	ea	2	450.00	460.00
Paved gutter, std tp 1	lf	281	5.50	3.40
	lf	40	5.00	5.00
Conc, cl E, struct	cy	0.9	100.00	100.00
Pavement				
Base crse, waterprf aggr	cy	300	15.00	14.00
RC appr slabs, T = 13"	sy	292	21.00	16.00
Conc curb, std type 2A	lf	3,997	0.80	0.75
Stab cr aggr shdrs & appr	cy	531	6.50	8.00
Subbase	cy	2,828	4.90	5.00
Bit matl for surf treat	gal	900	0.50	0.18
surf treat, #6	cy	29	8.00	5.00
RPCC pavement, 9"	sy	11,397	6.65	7.00
Bridge				
Cofferdams, cribs & shtg	ls	job	9,500	2,000
Excavation, uncl	cy	1,248	6.50	10.00
rock	cy	250	11.00	30.00
Conc, cl A superstruct	cy	1,270	60.00	70.00
cl E piers	cy	675	45.00	55.00
abutments	cy	294	50.00	55.00
Steel, reinforcing	lb	364,298	0.13	0.12
structural	lb	2,762,748	0.22	0.205
Field paint struct steel	lb	2,762,748	0.007	0.0035
Alum rail & supports, concrete parapets	lf	1,898	12.00	13.00
Electric ltg system	ls	job	2,400	2,400
Galv stl downspouts, incl specials, 6"	lf	968	12.00	10.00
Porous backfill	cy	48	12.00	8.00
Cr aggr slope protect	sy	1,416	4.00	4.50
Other				
Constr layout stakes	ls	job	5,000	7,500
Premium on industr ins	ls	job	10,000	8,000
Maintain traf, incl lts, signs, barricades & watchmen, 24 hr	lf	job	1,200	100.00

Commence: 8-1-59 Complete: 6-30-61

Larger Elevated Tank Wins For Nebraska Water Supply

Papillion, Neb., chose a 500,000 gal elevated water tank at $146.80 per Mgal over a 400,000 gal alternate at $169.16, and cathodic protection over paint in awards to increase its storage capacity and improve flows and pressures. The tank contract, including pipe, valves, hydrant and cathodic protection went to Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa., at $74,470.

Henningson, Durham & Richardson, Inc., Omaha, is the consultant.

Contract to increase well heads from 235 total dynamic head to 262 and 349 ft went to Layne-Western Co., Omaha, at $5,490.

1C	Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.	$74,470
2	Chicago Bridge & Iron Co., Chicago, Ill.	76,050
3	Graver Tank & Mfg Co., East Chicago, Ill	93,905
EE	Henningson, Durham & Richardson, Inc., Omaha	82,000

Bids: 8-31-59 Items	Unit	Quantity	Unit Prices 1C	 2
Tank, 500,000 gal	ls	job	$73,390C	$75,200
400,000 gal	ls	job	67,660*	72,200
Cathodic protection, add	ls	job	1,300	1,250
Paint savings, deduct	ls	job	220.00	200.00

C Contract Commence: 8-1-59. Complete 180 days.
Liq. dam. $35/day
* Engineer's estimate $78,000

WELDED or RIVETED
STEEL PLATE
FABRICATION

- Boiler Casings
- Boiler Breechings
- Flues and Ducts
- Condenser Shells
- Condenser Piping
- Heavy Turbine Housings
- Fan and Blower Housings
- Dust Collector Housings
- Industrial Gas Mains
- Expansion Joints
- Hoppers and Bunkers
- Tanks and Vats
- Pressure Vessels
- Wind Tunnels
- Crane Bridge Girders
- Trolley Frames and Trucks
- Rigid Frames
- Roll-Over Fixtures
- Tank Turrets
- Gun Mounts
- Heavy Truck Bodies
- Engine Frames and Bases
- Crawler Frames
- Press Platens and Beds
- Press Columns
- Heavy Machinery Parts and Assemblies
- Gas Seal Hoods for Blast Furnaces
- Furnace Roof Rings
- Design Conversion of Castings to Weldments

MACHINING
- Complete Machining Service—Facilities for Heavy Work of Unusual Dimensions

STRUCTURAL STEEL
- For Buildings, Bridges and Special Purpose Structures
Drum Gates
Roller Gates
Tainter Gates
Tainter Valves
Protection Angles

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Branch Offices in New York, Chicago, Los Angeles and San Francisco

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Materials Prices

Monthly Market Quotations by ENR Field Reporters

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over,			STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over,			BRICK Per M. in quantity		LIME Per ton, in paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized
Atlanta	$170.10pe	$153.25pkke	$306.55pe	$344.85pe	......	......	$31.50uu	$33.75uu	$36.50hh	$28.50hh	$28.50hh
Baltimore	217.00	231.00	434.00	491.00	602.00	690.00	36.00	41.00	35.60	23.20	.....
Birmingham	135.00pss	152.00pss	......	303.00p	376.00p	465.00p	27.00ff	38.00jj	38.28mm	20.87mm	26.33gmm
Boston	232.00†mm	248.00†mm	463.25†mm	556.00†mm	......	......	43.50p	58.00p	42.00§	34.00§	.....
Chicago	137.00ll	149.00ll	280.00ll	......	......	......	32.00	34.00	38.00ll	35.20o	.....
Cincinnati	160.00mmjvv	172.00jmmvv	327.00jddmm	390.00jmmvv	425.00jmmvv	500.00jmmvv	48.00jk	47.00jk	29.10jmm	25.10jmm	29.10jmm
Cleveland	200.00tt	213.00tt	......	453.00tt	......	693.00tt	41.75tt	45.75ggtt	32.75ptt	28.00ptt	.....
Dallas	155.00	155.00	306.00	370.50	452.25	560.00	27.50	49.00	41.80	24.58	28.50
Denver ..... mm	170.00	185.00	310.00	310.00	390.00	442.00	30.00	54.00	48.00p	42.00p	46.00p
Detroit	242.00mm	258.00mm	483.00mm	548.00mm	723.00mm	827.00mm	51.50pmm	52.00pmm	38.00mm	30.00mm	40.00mm
Kansas City. mm	158.00	158.00	312.00	312.00	400.00	500.00	34.00	34.00	36.26	34.26	29.76
Los Angeles	r	r	r	r	r	r	38.00uu	.....	38.00nnll	38.00nnll	39.00nnll
Minneapolis	208.00pe	225.00pe	452.00pe	225.00pwe	......	......	45.60vpe	54.00ype	49.00bbe	38.00bbe	52.00bbde
Montreal	168.78augoo	180.93augoo	325.00augoo	220.00qoo	400.00qoo	......	48.25b	56.30b	39.00	22.00	13.25
New Orleans	198.00	198.00	370.00	370.00	......	......	42.00	55.00	44.00	32.00	32.00
New York	177.00h	189.00h	283.00ch	285.00hn	......	......	46.00p	.....	40.00p	38.00p	.....
Philadelphia. R*	202.10ss	215.60ss	323.40ss	485.10ss	......	......	40.00mm	50.00mm	39.50xxmm	21.50	21.50
Pittsburgh... pp	200.00t	213.00t	400.00t	453.00t	607.00t	693.00t	39.00t	46.00t	38.00t	33.00t	34.00t
St. Louis	180.00mmpp	190.00pp	385.00pp	401.00ppp	459.00pp	621.50pp	44.00mmpp	45.50pp	1.00aapp	.80aapp	1.35aaapp
San Francisco	156.85*mm	177.10*mm	235.30dd*mm	159.40qqmm	......	......	43.00*mm	43.00*mm	29.24mm	29.24mm	31.74mm
Seattle	235.00pt	270.00pt	490.00pt	265.00pwt	......	......	52.00t	66.00t	52.00bbt	38.00bbt	4.50mbbt
Toronto	158.00rr	173.00rr	336.00rr	263.00frr	378.00rr	......	25.00rr	63.00rr	38.00mm	34.50mm	33.50mm

•§ F.o.b. yard. •* F.o.b. plant Stockton. •† F.o.b. yard Roxbury. •a Smooth. •b $4.50 del. •c 8 x 12 x 12 in.-6 cell. •d Pulverized hot. •e less 5% disc., 10th., •f 8 x 8 x 12. •g Lumps, $26.72. •h F.o.b. trucks, job site N.Y.C. •i 80 lb sacks. •j Truck load or over. •k $1.00 discount per M, 10 days. •l Red face. •m Per bb . 180 lb. processed. •n 7¾ x 7¾ x 12. •o Mason's double hydrated pressure. •p Truck lots. •q Provincial and Municipal tax extra (6%). •r Not used: earthquake danger. •s 8 x 16 x 12. •t less 2% disc., cash. •u Incl. Federal tax. •v Sand lime. •w 5 x 8 x 12. •x dumped. •y Chi common. •z Pebble; 80 lb sack. •aa 50 lb sack. •bb LCL •dd 6 x 12 x 12. •ff 80% common. •gg Smooth. •hh less 25¢ disc., cash. •ii F.o.b. plant. •jj rough; smooth; $40. •kk 3½ x 11½ x 11½. •ll less 2% disc. 10th. •mm less 2%, 10 days. •nn F.o.b., L. A. •oo less 2%, 30 days. •pp add 2% sales tax. •qq 8 x 5½ x 11½. •rr 2½% disc., 10 days. •ss 5% disc., 10 days. •tt less 2% disc., 15th. •uu less 50¢/M, 10 days. •vv 4000 pcs. and over. •xx revised eff Sept. 1. •R revised

* Philadelphia prices revised, watch for analysis.

PAINT, ROOFING—F. O. B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600 lb. (Approx.) bbl. F.O.B. Plant Dry a C	WHITE LEAD Per 100 lb. in 100 lb. cases in oil	READY-MIXED PAINT Per gal., drums			ROOFING SUPPLIES; Carload lots f.o.b. factory				
			Graphite b	Aluminum c	Ferric Oxide d	Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 380 lb. bbl. per ton
Atlanta	$13.75ggJO	$24.00ggJ	$3.59	$3.86	$3.31	$2.90kk	$2.12kk	$2.49kk	$0.67kk	$63.50kk
Baltimore	17.50lpp	24.00	3.00	4.40	3.50	2.78	4.25	4.25	.48	56.75
Birmingham	26.00†J	29.00†J	3.90J	3.40J	....	3.08†mm	2.28ii†mm	2.28ii†mm	.75ffmm	45.00eemm
Boston	29.95†oomm	26.90†mmm	....	....	....	3.74q	2.48g	2.83g	.50g	58.00g
Chicago	15.25rJqqpp	24.00†J	....	....	....	3.80ukk	2.76okk	3.00okk	48.00bbskk	57.70†kk
Cincinnati	15.25†JO	24.00†J	....		....	2.87mm	2.02omm	2.42omm	.428ymm	55.96Hmm
Cleveland	25.65†	26.90†	2.54ggP	2.82zzgg	3.29ggg	2.82q	2.05o	2.42o	.484y	49.00gg
Dallas	22.50	23.50M	....	3.25B	....	3.00u	3.00o	3.00o	.470	66.00hh
Denver	23.00n	24.00	3.98	5.20	3.70	2.86	2.12o	2.80o	.50ff	50.00
Detroit	16.25r	24.00rr	2.70mm	3.95mm	2.70mm	2.82mm	2.05omm ll	2.42omm ll	.56ffmm	49.00mm
Kansas City	26.90lggoo	25.65	3.99	3.43	3.01	4.01mm	2.77omm	2.77omm	82y	.....
Los Angeles	15.25yy	22.00	3.30n	4.50n	4.20n	3.40nkk	2.40niikk	l	75nykk	l
Minneapolis	17.83N	21.50kk	....	....	....	2.87kk	2.12hikk	2.42hikk	438ikk	50.00rkk
Montreal	19.45O	26.00wtt	5.52Dfft	6.55xff	5.10kfft	5.40	4.65f	4.65j	1.60	4.40uu
New Orleans	23.00Jpp	24.00J	....	....	....	2.78	1.98	2.85	.680	45.50
New York	16.25ooO	29.75	....	....	....	3.06zz	2.02zzo	2.45o	.438s	49.00*
Philadelphia R*	16.25Omm	24.75mm	3.35mm	3.90mm	2.65Rmm	4.70	3.60	2.85	.515	50.00
Pittsburgh	21.00mggJ	24.00J	2.20‡EJ	2.25‡FJ	2.25‡GJ	3.57sH	2.75sH	2.95H	.48H	55.00H
St. Louis K	25.65†m	26.90	....	....	....	3.20iimm	2.31hhK	2.96hhK	.428yK	62.00K
San Francisco	26.70mm	26.90mm	3.20mm	4.30mm	3.50mm	2.95mm	1.97aaiimm	3.10mm	.46jj	54.00
Seattle	13.35HO	24.00H		4.19ccffJ	....	3.64qccH	3.16hccH		.55cc	
Toronto	14.45	20.85	5.15J	6.18J	5.95J	2.52	2.40aae	2.40o	1.01j	50.00A

•† Delivered. • Note: Red lead in oil 50% higher than white lead in oil. •* Aver. wt. approx. 425 to 550 lb drums. •a Red lead prices change frequently due to pig lead price changes. •b U.S. War Dept. Spec. 3-49A. •c ASTM Spec. D266-31. •d 80% minimum ferric oxide. •e Per 108 sf roll. •f Per 432 sq ft. •g F.o.b. yard Roxbury. •h Per roll, 65 lb. •i Net carload prices, Minneapolis and vicinity. •j 45 gal containers. •k Over 80% ferric oxide. •l Not used. •m 100 lb. keg. •n F.o.b. city. •o Per 60 lb roll. •p 6-drum, 50 gal each. •q Per 90-lb roll. •r F.o.b. factory, Chicago. •s Truckload. •t Incl. Federal tax. •u Per 90-lb square. •v Per ton. •x Ready-mixed. •y 55-gal container. •z Drums. •aa 15 lb. •bb Roofers coating and cement. •cc LCL, truck delivery. •ee Asphalt pitch in 100 lb package. •ff 5-gal drums. •gg F.o.b. factory. •hh Incl. freight. •ii Per 324 sf roll. •jj Asbestos roof coating. •kk less 2% disc., 10th. •mm less 2% disc., 10 days. •oo 100 lb bbls. •pp 50 or 100 lb bags. •qq 500 lbs or more •rr F.o.b. plant, Detroit. •ss 50 lb bbls. •tt 25 lb kegs. •uu 250 lb bbls. •xx Sept.: Rolls revised to $2.75. Asph. Felt revised to 1.71. •yy Sept. revised to $12.00. •zz Sept. revised to $2.80. •A 400 lb barrels. •B ASTM Spec. D962-49. •C 95%. •D Std. black. •‡ Milt. spec.: E TTP27; F TTY81; G TTP31. •H less 2% disc., cash. •I Per 100 lb. •J less 1% disc., 10 days. •K add 2% sales tax. •L CL. •M 1 ton or more. •N under 500 lbs, add $1. •O 50 lb. bag. •P Sept. revised to $2.43. •Q Sept. revised to $3.23. •R revised.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER‡		VERMICULITE‡			PERLITE‡		ALUMINUM SHEET†		STAINLESS STEEL† SHEET-TYPE 302g		COPPER WATER* TUBING-TYPE L 2000 ft lots per ft	
	Neat per ton	Gauging per ton	Home Insulation pellets	Plaster aggregate	Concrete Aggregate Untreated	Plaster Aggregate	Concrete Aggregate Untreated	Flat .100" th 36"x108" & 48"x144" per lbjt	Corr roof .032" th 35"x12' per shu	20 ga 48"x96"-120" per cwthh	28 ga 36"x120" per cwtmm	⅜"b	½"c
			per bag of 4 cu ft										
Atlanta	$32.00ss	$42.00ss	$1.55sss	$1.65sss	$1.80slss	$1.65ss	$1.65ss	$0.440noo	$8.83n	$65.68nzz	$74.43nzz	$0.1762ss	$0.2464ss
Baltimore	23.80	34.60	0.95	1.15	1.15	1.15	1.55	0.462	0.451r	63.00	71.25	0.16	0.23X
Birmingham	37.00ss	43.00ss	1.55ss	1.55ss	1.60lss	1.27ss	1.27lss	0.458M	9.62K	67.34K	76.09K	0.20ssX	0.27ss
Boston	24.00	30.00	1.40	1.40	1.40	1.55ss	1.50ss	0.462	29.35p	64.42dd*zz	72.67dd	0.1762ss	0.2464ss
Chicago	26.80tt	26.80tt	1.55	1.60	1.60l	1.60	1.60	0.506z	9.30a	64.15ee	72.40ee	0.1762	0.2464
Cincinnati	23.85*ss	23.85*	1.75*ss	1.75*ss	1.75*ss	1.85ss	1.90ss	0.434	9.56	65.30zz	74.05zz	0.1992ss	0.2791ss
Cleveland	28.00N	45.00N	1.14ss	1.17ss	1.25lss	1.45ss	1.45ss	0.458as	8.48	64.33oozz	72.58oozz	0.2274tt	0.2867tt
Dallas	30.65	30.65	1.05	1.21	1.37	1.21	1.32	0.452	0.451r	64.09	72.34	0.1668	0.1986
Denver	27.00	27.00	1.50	1.40	1.50	1.50ss	1.60ss	0.452	10.89	65.00gg	73.57gg	0.1772	0.2370
Detroit	28.00ss	28.00ss	1.27ss	1.31ss	1.40ss	1.45ktt	1.50ktt	0.452a	10.19a	65.15azz*	73.90azz*	0.1992	0.2791
Kansas City	30.00	35.00	1.19E	1.21E	1.29lE	1.21	...	0.444	23.20ggyy	67.50E	76.25E	0.1756	0.2460
Los Angeles	27.00tt	28.00tt	1.25ktt	1.20ktt	1.25tt	1.11	1.11	0.486	10.543	65.02	73.27	0.1756	0.2420
Minneapolis	35.00F	35.00F	1.65tt	1.80F	1.95F	1.40S	1.50S	0.468	16.23	63.61GR	69.61ffG	0.1792f	0.2510
Montreal	27.60h	35.60h	1.25h	1.40h	1.50h	1.15v	1.15v	43.95AH	12.10H	64.75H	....	0.1840	0.2187
New Orleans	34.00	48.00	1.25P	1.35P	1.25P	1.25P	1.25P	0.526	24.90	65.00Y	73.75Y	0.1853	0.2594
New York	27.00	35.00	1.40	1.35	1.55	1.35	1.45	0.462aT	0.2335aR	64.08aB	72.33aB	0.1792	0.2510
Philadelphia	26.50	31.00ss	1.30ss	1.30ss	1.40lss	1.25ss	1.25qqss	0.44	9.46	63.00	71.25	0.1922	0.2791
Pittsburgh *	30.00nn	33.00nn	1.50nn	1.50nn	1.50mm	1.50nn	1.50nn	0.452	9.46	64.00	76.25pp	0.1518	0.1807
St. Louis uu	30.00uu	41.00uu	1.50uu	1.60uu	1.55uu	1.60uu	1.65uu	0.452	10.28	65.39Kmm	71.89yuu	0.1756fmss	0.1246fmss
San Francisco	29.50ss	30.50ss	1.38ss	1.38ss	1.50ss	1.38oss	1.58oss	0.502	9.76	66.50K	74.25K	0.1756	0.2460
Seattle	42.40nn	45.60nn	1.55nn	1.25knn	1.85lnn	1.50k	...	0.45D	9.90D	64.02D	83.27D	0.1756	0.2460
Toronto	30.40	50.00	1.45	1.45	1.65	45.00Q	...	0.3995	24.75ap	73.74	86.52	0.2802	0.3114

‡trucklots, delivered †fob warehouse *fob city •a delivered •b ½" O.D. •c ⅝" O.D. •d per sf •e 34" x 60" sheet •f per 100 ft •g 5 tons & up: cold roll, anneal & pickled 2B finish •h incl. Federal tax •i add 25¢ for pint of additive •j 1100 & 3003 alloy, mill finish •k bag of 3 cu ft •l treated with air entraining agent •m 2-10M ft •n fob mill fr equalized with nearest stocking competitor •o 250 sacks or more •p 100 sq ft •r per lb •s 30 lb bag •t 36" x 108":-10.81 lb/sh: 48" x 144": 21.7 lb/sh •u 19.31 lb/sh •v fob plant •w 48" x 144" •x 0.11"th •y 27 gauge •aa 16M lb & up •dd add $1.00 cwt boxing •ee 4 tons & up •gg add $2 cwt boxing: $0.75 cwt on skids •hh Theoretical wt for 48" x 96": 60.4-lb, per sh •ii 300-bag lots •jj 100-lb bag •mm Theoretical wt: 19.7-lb per sh •nn 2% cash •oo skid packed •pp type 304 •qq Philadelphia and suburbs. •rr less 2% disc. 15 days. •ss less 2% disc. 10 days. •tt less 2% disc. 10th. •uu add 2% sales tax. •vv Type N. •ww Per 100 sf. •xx less ½% disc. 10 days. •yy .021 ga. •zz .061" th. •A Per 100 lb. •B crated. •C 15M lb. •D less ½% for cash. •E Quantity differential. •F less 5% disc. 10th. •G less ½% disc. 10th. •H Fed. tax exempt. •K less ½%, 10 days. •L 5% disc. 30 days. •M 3003: .452 for 1100. •N less 2%, 15th mo. •O less $2, cash & carry. •P less 2%, 15 days. •Q per ton. •S add .10 bag under 200 bags. •T 5000# quantity on 4000# skids. •U 30 Msf quantity: $0.245 in 10 Msf quantity

* Philadelphia prices revised, watch for analysis. •R per sq ft. •X eff. Sept. 1 •Y eff. July 1

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

▲ **R. I., Providence** — DOCTORS' BLDG. — BA 12/8 — Rhode Island Hospital, Bd. Trustees, 593 Eddy St., (selected list of bidders) doctors' bldg., Eddy St. $1,500,000. Shepley, Bulfinich, Richardson & Abbott, 1 Court St., Boston, Mass., archts. CD 7/22.

▲ **Mass., Burlington** — SCHOOL — BA 12/15 — Town, Supt. Schools, high school, Winn St. $1,800,000. Plans deposit $20. Clinch, Crimp, Fisher & Brown, 177 State St., Boston, archts. CD 4/15.

BUILDINGS—SLC

▲ **Mass., Brockton** — SHOPPING PLAZA—Fernandes Realty Co., West Main St., Norton, Mass., soon lets contract, "Brockton Shopping Plaza," Crescent and Center Sts., Rtes. 27 and 123. $1,500,000. Washburn-Luther Assoc., 7 North Main St., Attleboro, archts. CD 4/10.

HEAVY CONSTRUCTION—LB & CA

▲† **Perini Corp.,** 73 Mt. Wayte Ave., Framingham, Mass., CA **$8,053,456,** Everett Dam and Winslow Rd. relocation-Everett Reservoir Contoocook and Piscataquog Rivers, Flood Control, Hopkinton, Dunbarton and Weare Counties, ENG-19-016-60-1, NEW HAMPSHIRE. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids Oct. 29. CD 11/4, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Warwick, R. I., CA **$1,047,509,** hy. and bridge constr. Interstate Rte. 495. Proj. 1-95-1(6)3, Attleboro. Bids Sept. 15, awarded Nov. 10. CD 9/17, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Warwick, R. I., CA **$1,324,847,** est. $1,736,148, hy. and bridge constr. Intertsate Rte. 95. Proj. 1-95 1(3)2 Section 1, Attleboro. Bids Aug. 11. CD 8/13, under LB.

BUILDINGS—LB & CA

▲ **L. & R. Constr. of Medford, Inc.,** 84 Main St., North Reading, Mass., LB **$1,143,341,** JUNIOR-SENIOR HIGH SCHOOL, Pound St., MEDFIELD, MASS. Town, Supt. Schools, High School, Dale St., Medfield, Mass. Cleverdon, Varney & Pike, 120 Tremont St., Boston, Mass., structural engrs. Bids Nov. 12. CD 10/21.

▲ **Harry Williams,** 52 Main St., Southport, Conn., Owner builds **$1,750,000.** 125 HOUSES, Madison Ave., BRIDGEPORT, CONN.

▲ **C. A. Monroe Constr. Co.,** 39 Glenbrook Rd., Stamford, Conn., CA **$1,143,750,** APARTMENT, 700-704 Summer St., STAMFORD, CONN. 700 Summer St. Corp., 39 Glenbrook Rd., Stamford, Conn. George G. Miller, 125 W. 45 St., New York, N. Y., archt. D. I. Colasano, 125 W. 45 St., New York, N. Y., engr. CD 5/12.

MIDDLE ATLANTIC

BUILDINGS—BA

▲ **N. Y., New York**—HOUSING, etc.—BA 12/8—New York City Housing Auth., 299 Broadway, Zone 7, James Madison Houses Proj. NY-5-33 (1) fdns. and general contract (2) heating and ventilating (3) electrical work (4) plumbing work for James Madison Houses, E. 110th St., Park Ave., E. 109th St. and Madison Ave. and E. 108th St., Park Ave., E. 107th St. and Madison Ave., Manhattan Boro, $8,000,000. Plans deposit $75; Proj. NY-5-33, furnishing, erecting elevators for James Madison Houses. Plans deposit $25. Kiff, Colean, Voss & Souder, office of York & Sawyer, 101 Park Ave., New York 17, N. Y., archts. Severed-Elstad-Krueger Assoc., 415 Lexington Ave., New York 17, N. Y., consult. engrs. Meyer Strong & Jones, Inc., 230 Park Ave., New York, N. Y., mechanical engr. CD 8/10.

Md., Rockville—PLANT, etc.—BA About 12/10—U. S. Industries Roboydne Co. 8411 2nd St., Silver Spring (selected list bidders), 50,000 sq. ft. electronics manufacturing plant and offices at Montgomery Industrial Park. $800,000. Montgomery & Dolan, 8641 Colesville Rd., Silver Spring, archts.

▲ **N. J., Clifton**—SCHOOL—BA 12/18—City, City Hall, Senior High School, $6,000,000. Arthur Rigolo, Rte. 46, archt. CD 3/28/58.

HEAVY CONSTRUCTION—LB & CA

▲ **Lightning Elec. Service Co.,** 11 Coes Pl., Newark, N. J., and **Fischbach & Moore, Inc.,** 545 Madison Ave., New York 22, N. Y., CA **$3,700,000,** 2½ mi. mercury vapor and fluorescent lights on George Washington Bridge and approaches, NEW YORK and NEW JERSEY. Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. CD 8/15/57.

▲ **PENNSYLVANIA**—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg,
G. A. & F. C. Wagman, Inc., 370 E. Main St., Dallastown, Pa., CA **$1,071,467,** 2,418 ft. divided hy. b. conc. 24 ft. wide each side concrete divisor; 3 bridges, L. R. 767 (3) section Harrisburg-By-Pass (Interstate) Harrisburg, Dauphin Co. Bids Oct. 29. CD 11/14, under LB.

▲† **Lane Constr. Co.,** 965 E. Main, Meriden, Conn., CA **$2,864,300,** Base Bid No. 1, FY-60 apron operational and road relocation, ENG-49-080-60-9(9), ANDREWS AIR FORCE BASE, MD. U. S. Eng., First and Douglas Sts., N.W., Wash. 25, D. C. Bids Nov. 4. (**Correction**—bid prices.) CD 11/6, under LB;
Williams Constr. Co., Middle River (Br. Baltimore), Md., CA **$241,654,** Base Bid No. 2, of ENG-49-080-60-9(9) (Andrews Air Force Base, Md.)

▲ **Diamond Constr. Co.,** Ocean Steamship Terminal, P. O. Box 647, Savannah, Ga. CA **$2,335,535,** substructure for West Highway Bridge over Potomac River near 14th St., N.W., WASH., D. C. D. C. Govt., Dpt. Hys., 499 Pa Ave, N.W., Wash, D. C. Bids Nov. 6. CD 11/10, under LB.
Schact Steel Constr. Co., Inc., 465 Hillside Ave. Hilside, N. J., CA **$2,438,415,** steel girder superstructure for West highway bridge over Potomac River (Wash., D. C.).

▲ **Van Cortlandt Ave. Corp.,** 600 Bedford Rd., Pleasantville, N. Y., Separate Contracts, **$2,000,000,** thirty 2 story bldgs., 360-unit Springvale-on-Hudson Garden APARTMENTS, 35 acre tract, Albany Post Rd., CRUGERS, N. Y. Luder & Assocs., 44 Main St., Irvington, N. Y., archts.

▲ **Praver Assocs.,** 161-10 Jamaica Ave., Jamaica, N. Y., Owner Builds, **$20,000,000,** 23 six story, 1,640 families, Sherwood Village APARTMENTS, 17 acre tract, at Long Island Expressway and 108th St., FOREST HILLS, N. Y. Paul & Jarmul, 89-51 164th St., Jamaica, N. Y., archts.

▲ **I. Feldman & Sons,** 131 E. 17th St., New York 3, N. Y., CA Est. **$5,351,080,** 298 family middle income HOUSING, Baychester Ave. between Pitman and Nereid Aves., NEW YORK, N. Y. Baychester Housing Co., Inc., c/o contractor. Paul & Jarmul, 89-51 164th St., Jamaica, N. Y., archts.

▲ **Ballantyne Garden Apts., Inc.,** c/o Lipton & Goldberg, 66 Court St., Brooklyn 2, N. Y., Separate Contracts, **$1,876,000,** 120 family middle income HOUSING, Ballantyne Blvd. west of South Salina St., SYRACUSE, N. Y. Talbot & Robertson, 4619 E. Genesee St., DeWitt 14, S. Y., archts.

▲ **James D'Agostino,** 72 Hobart St., Hackensack, N. J., Owner Builds, **$2,000,000,** 79 HOUSES, County Rd., CRESSKILL, N. J.

▲ **Barba Assocs.,** Woodland Ave., Summit, N. J., Owner Builds, **$2,500,000,** 183 unit APARTMENT, E. Broad St., WESTFIELD, N. J. William G. Chigotis, 80 Morris Ave., Springfield, N. J., archt.

▲ **Navarro Corp.,** 6219 Broad St., Pittsburgh 6, Pa., LB **$2,334,000,** general construction SENIOR HIGH SCHOOL, McKEESPORT, PA. McKeesport School Dist., Shaw Ave., McKeesport, Pa. Bids Nov. 4. CD 10/15.

▲ **Steiner Constr. Co.,** 2122 Maryland Ave., Baltimore, Md., LB **$1,181,200** (4 bidders), HOSPITAL alterations, addns., BALTIMORE, MD. Kernan Hospital, Inc., Windsor Mill Rd., Baltimore, Md.

▲ **Consolidated Engineering Co., Inc.,** 20 E. Franklin, Baltimore, Md., CA Est. **$16,000,000** (6 bidders), BREWERY, HALETHORPE, MD. Carling Brewing Corp., 9400 Quincy Ave., Cleveland 6, O. Bids Oct. 29, awarded Nov. 4. CD 10/26.

▲ **Saul Ritzenberg & Assocs.,** 1028 Connecticut Ave. N.W., Wash., D. C., Owner Builds, **$3,000,000,** 200-unit Forrest Hills APARTMENT, Piney Branch Rd. and New Hampshire Ave., SILVER SPRING, MD. Collins, Krondstadt & Assocs., 7705 Georgia Ave. N.W., Wash., D. C., archts.
Nathan Shapiro, 6819 Selkirk Dr., Bethesda, Md., CA Est. **$960,000,** 96 unit APARTMENT, Swann and Randall Rds., SUITLAND, MD. Myer Kielsohn, c/o Collins, Krondstadt & Assocs., archts., 7705 Georgia Ave N.W., Wash., D. C.

▲ **American Constr. Co.,** 216 Constitution Ave., Wash., D. C., CA **$1,400,000,** alterations and tunnel, BANK BLDG., WASH., D. C. International Bank for Reconstruction & Development, 1818 H St. N.W., Wash. 25, D. C. Chatelain, Gauger & Nolan, 1632 K St. N.W., Wash., D. C., archts.

▲ **Victor R. Beauchamp, Inc.,** 431 Cedar St. N.W., Wash., D. C., LB **$1,407,619** (11 bidders), SCHOOL of ENGINEERING and ARCHITECTURE, WASH., D. C. Catholic University of America, 620 Michigan Ave. N.W., Wash., D. C. Thomas Locrast & Assocs., 1518 P St. N.W., Wash., D. C., archts. Bids Nov. 13. CD 11/4.

▲ **D. M. Fontana Constr. Co., Inc.,** 112 A St., Wilmington, Del., CA **$1,772,000** (5 bidders), JUNIOR HIGH SCHOOL, on 22½ acre site between Graylyn Crest and Holiday Hills, just off Marsh Rd., WILMINGTON, DEL. Alfred I. duPont School Dist., Wilmington, Del. Bids Oct. 28. CD 10/22.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000, other public works $88,000, industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
Mississippi to Rockies
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

SOUTH

BUILDINGS—BA

▲ **Ky., Louisville**—BANK ADDN.—BA 12/2—Citizens Fidelity Bank & Trust Co., 5th and Jefferson Sts., Zone 2, 102,830 sq. ft. bank alterations, addns. Over $2,000,000. Carson & Lundin, 425 Park Ave., New York 22, N. Y., archts. B. X. Murphy & Bros., 5th and Market Sts., Zone 2, assoc. archts. Jaros Baum & Bolles, 415 Lexington Ave., New York, N. Y., mechanical engrs. Hazelet & Erdal, Commerce Bldg., 3rd and Liberty, Zone 2, structural engrs. CD 7/23.

▲ **Miss., Biloxi** — SCHOOL — BA 12/3 — Bd. Trustees Biloxi Municipal Separate Schools, 134 Tameuse St., high school. $1,500,000. Extended date. Landry & Matthes, 214 W. Pine St., Hattiesburg, archts. CD 11/16.

▲ **N. C., Durham**—BIOLOGICAL SCIENCE—BA 12/15—Duke University, Administration Bldg., 5 story, 145,000 sq. ft. biological science bldg. $2,500,000. Plans deposit $50. Horace Trumbauer, W. O. Frank & Wiliam E. Frank, 1511 Land Title Bldg. Phila., Pa., archts. CD 10/22.

BUILDINGS—SLC

▲ **Miss., Natchez**—PLANT, etc.—Armstrong Tire & Rubber Co., 475 Elm St., West Haven, Conn., soon lets contract 300,000 sq. ft. manufacturing plant addns., warehouse, office bldg., steam plant and production bldgs. $3,000,000. James T. Canizaro, 112 Deposit Guaranty Bank Bldg., Jackson, archt. CD 10/23.

HEAVY CONSTRUCTION—LB & CA

▲† **Henry C. Beck Co.,** 205 Worth Ave., 304 Armour Bldg., Palm Beach, Fla., and Fulton National Bank, Atlanta, Ga., CA **$4,321,658,** Saturn Launch Facilities, Cape Canaveral Missile Test Center, ENG-08-123-60-12, COCOA, FLA. U. S. Eng., Box 4970, Jacksonville 1, Fla. Bids Oct. 15. CD 10/23, under LB.

▲† **American Elin Corp.,** 11 Broadway, New York, N. Y., CA **$2,139,240,** three 32,400 kw. hydroelectric generating units, Wheeler Dam, ALABAMA. Tennessee Valley Auth., New Sprankles Bldg., Knoxville, Tenn. Bids July 30, awarded Nov. 4. CD 9/14, under LB.

BUILDINGS—LB & CA

▲ **McDonough Constr. Co. of Georgia,** 1958 Monroe Dr. N.E., Atlanta, Ga., CA **$1,800,000,** Pittman

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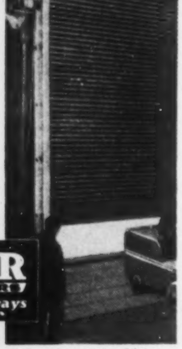

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Plaza SHOPPING CENTER, LYNCHBURG, VA. Dr. R. L. Pittman, Grace Pittman Bldg., Fayetteville, N. C.

▲ **Daniel Constr. Corp.**, 1010 N. Thompson St., Richmond, Va., CA **$2,871,349**, George Wythe HIGH SCHOOL, Southside, CA **$2,871,349**, John Marshall HIGH SCHOOL, Northside, RICHMOND, VA. Richmond City School Bd., 9th and Marshall Sts., Richmond, Va. CD 10/15.

▲ **Kavanagh, Smith & Co.**, 114 N. Green St., Greensboro, N. C., Day Labor, **$1,850,000**, 200 RESIDENCES, ASHEVILLE, N. C.

▲ **Boyd & Goforth, Inc.**, P. O. Box 10436, Charlotte, N. C., CA Est. **$1,000,000**, 158,000 sq. ft. MFG. PLANT, CHARLOTTE, N. C. Arrowood Inc., York Rd., Charlotte, N. C. A.E.A. Engineers, Inc., 222 N. Cecil St., Charlotte, N. C., archt.

Cloister Homes, 114 N. Greene St., Greensboro, N. C., Day Labor, **$800,000**, 150 RESIDENCES, Rochester Heights and Wothdale Subdivisions, RALEIGH, N. C.

▲ **Daniel Constr. Co.**, 429 N. Main St., Greenville, S. C., CA Est. **$3,000,000**, 250,000 sq. ft. FINISHING PLANT, CHERAW, S. C. J. P. Stevens & Co., Inc., c/o contractor.

▲ **Williams Lumber Co.**, 1030 13 St., Columbus, Ga., Day Labor, **$1,100,000**, 100 RESIDENCES, North Columbus area, COLUMBUS, GA.

▲ **Mayell Enterprises**, 171 S. Lake Ave., Pasadena, Calif., Owner Builds, **$3,500,000**, 6 APARTMENTS, PALM BEACH, FLA. J. G. Rogers & Lovelock & Fritz, 145 Lincoln Ave., Winter Park, archts. CD 8/10.

▲ **Mayell Enterprises**, 171 S. Lake Ave., Pasadena, Calif., Owner Builds, **$1,500,000**, 8 APARTMENTS, ST. PETERSBURG, FLA. James Gamble Rogers-Lovelock & Fritz, 145 Lincoln Ave., Winter Park, Fla., archts.

▲ **Mayell Enterprises, Inc.**, 171 S. Lake Ave., Pasadena, Calif., Owner Builds, **$1,500,000**, eight 3 story APARTMENTS, WINTER PARK, FLA. James Gamble Rogers & Lovelock & Fritz, 145 Lincoln Ave., Winter Park, Fla., archts.

▲ **Chemical Constr. Corp.**, 525 W. 43rd St., New York, N. Y., CA **$6,000,000**, AMMONI PLANT addn., MEMPHIS, TENN. W. R. Grace & Co., 147 Jefferson Ave., Memphis, Tenn.

MIDDLE WEST

HEAVY CONSTRUCTION—LB & CA

▲ **Curry Constr. Co.**, 413 S. Washington, Bloomington, Ind., CA **$1,061,400**, sewer extension to connect with South side sanitary sewer, and North side sanitary and relief sewer, WABASH, IND. City, City Hall, Wabash, Ind. Bids Oct. 20. Grand total $2,170,690. CD 9/29;
Yost Constr. Co., Inc., Decatur, Ind., CA **$821,400**, Part A, sewage treatment plant with subsidiary unit, Union Mills (Wabash, Ind.);
Buesching Bros. Constr. Co., 219½ E. Berry St., Fort Wayne, Ind., CA **$287,890**, Part B, sewage treatment plant with subsidiary unit, Union Mills (Wabash, Ind.).

▲ **ILLINOIS**—Dpt. P. Wks & Bldgs., Div. Hys., Centennial Bldgs., Springfield.
Ill.—**Jansen & Schaefer**, 1600 Broadway, Pekin, Ill. CA **$646,624**, wid'n., paving Court St., Pekin, Tazewell Co.;
Ill.—**J. P. Wetherby Constr. Co.**, 1016 W. Superior, Ottawa, Ill., CA **$1,095,015**, paving 2.36 mi. grade separation FAI 80 under Ill. 23 northeast of Ottawa, LaSalle Co. Bids Oct. 23, awarded Nov. 10. CD 10/27, under LB.

BUILDINGS—LB & CA

▲ **Karl Beachler**, 8 S. Pershing Dr., Akron, O. Owner Builds, **$1,000,000**, 160 HOMES, Terrace Hills, W. Nimisila Rd., ½ mi. west of Manchester, near AKRON, O.

▲ **Koppers Co.**, Koppers Bldg., Pittsburgh, Pa., CA Est. **$13,000,000**, two OXYGEN STEEL-MAKING FURNACES, Cleveland Works, CLEVELAND, O. Jones & Laughlin Co., 2 Gateway Center, Pittsburgh, Pa.

▲ **American Constr. Corp.**, 900 E. Dorothy Lane, Dayton, O., Owner Builds, **$3,000,000**, 250 HOMES, Blueberry Park, Gettysburg Ave., north of Cornell Dr., DAYTON, O.

▲ **Housecraft Builders, Inc.**, 180 W. Exchange, Akron, O. Owner Builds, **$1,500,000**, 76 HOMES, Sunrise Allotment on Highland Ave., east off Rte. 532, adjoining Mogadore Golf Course, MOGADORE, O. CD 2/28/56.

▲ **L. B. Holmes Constr. Co.**, 610 Graham, Akron, O., **Drexel Ayres Constr. Co.**, 1935 Adelaide, Akron, O., **R. E. Williams**, 814 Berwin, Akron, and **F. G. Myers & Son Constr. Co.**, 220 W. Long, Akron, O., CA Est. **$3,000,000**, 12 HOMES, Woodland Estates, Rte. 18 east of TALLMADGE, O. Woodland Estates Co., 23 E. Exchange, Akron, O. CD 2/10.

▲ **Hagerman Constr. Co.**, Strauss Bldg., Fort Wayne, Ind., CA **$2,007,448**, est. $2,000,000 (7 bidders), 150-unit, brick, stone Wesley Manor HOME FOR AGED, on 33-acre site on north side, FRANKFORT, IND. Methodist Northwest Indiana Conference, P.O. Box 122, Frankfort, Ind. Bids Sept. 10. CD 9/4.

▲ **Trio Development Corp.**, 222 E. Erie St., West Allis, Wis., CA Est. **$1,200,000**, 1 story, 125,000 sq. ft., concrete, steel, brick SHOPPING CENTER, WEST ALLIS, WIS. Milwaukee Shopping Center, c/o Samco Enterprises 222 E. Erie St., West Allis, Wis. CD 6/12/58.

MISSISSIPPI TO ROCKIES

BUILDINGS—BA

▲ **Iowa, Council Bluffs**—SCHOOL—BA 12/4—Bd. Educ. Independent School Dist., 1 story, 83,000 sq. ft., brick, concrete, steel school, in west side, $1,100,000. Extended date. Donald R. Hollis & Assocs., P.O. Box 71, Overland Park, Kan., archts. CD 10/30.

HEAVY CONSTRUCTION—LB & CA

▲ **Barbarossa & Sons, Inc.**, 402 33rd Ave. North, St. Cloud, Minn., LB **$1,140,014**, (5 bidders), sewer trunks, 22,000 lin. ft. sanitary sewers, etc., BLOOMINGTON (P. O. Minneapolis), MINN. Village, Village Hall, Bloomington, Minn. Bids Nov 13. DC 10/28.

▲† **Elliott Co.**, Jeannette, Pa., CA **$1,975,000**, two electric generators, Greers Ferry Dam, CIVENG-03-050-59-67, ARKANSAS. U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids Aug. 20, CD 8/24, under LB.

▲† **Martin K. Eby Constr. Co., Inc.**, 610 N. Main St., Wichita, Kan., CA **$1,270,873**, G/M assembly and technical supply rehabilitation, Forbes Air Force Base, ENG-23-028-60-13, TOPEKA, KAN. U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo. Bids Nov. 3. CD 11/11, under LB.

▲† **Standard Dredging Corp.**, 200 E. 42nd St., New York, N. Y., CA **$1,120,648**, dredging Sabine Pass Channel realignment, Sabine-Neches Waterway, Jefferson Co., Tex. and Cameron Parish, La., ENG-43-60-11, TEXAS and LOUISIANA. U. S. Eng., Box 1229, Galveston, Tex. Bids Nov 10. CD 10/19.

BUILDINGS—LB & CA

▲ **Jens Olesen & Sons Constr. Co.**, 321 W. 18 St., Waterloo, Iowa, LB **$1,016,900**, general contract 1 story HIGH SCHOOL, CHARLES CITY, IOWA. Bd. Educ. Community School Dist., Charles City, Iowa. Bids Oct. 23. CD 5/28.

FAR WEST

HEAVY CONSTRUCTION—BA

▲† **California**—BA 12/15—U. S. Eng., 751 S. Figueroa St., Los Angeles, dredging and revetment, Ventura Co. Harbor, Port Hueneme, Ventura Co., ENG-04-353-60-9. $2,500,000. Extended date. CD 11/2.

BUILDINGS—BA

▲ **Ore., Wilsonville**—HOUSING—BA 12/15—Bd. Control, Capitol, Salem, housing for attendants, Dammasch General Mental Hospital, near here. Plans deposit $150. Glenn Stanton, Concord Bldg., Portland, archt. CD 2/2/56, under Ore., Portland.

▲ **Calif., San Rafael**—CIVIC CENTER—BA 12/22—Bd. Supervs., Marin County, Courthouse, 1st phase Marin County Civic Center, 60 acre site, north of here on Hy 101, incl. administration units, county schools, offices, welfare dpt., library and county offices for treasurer, assessor and tax collector. $3,370,000. Frank Lloyd Wright, Taliesin West, Paradise Valley, Phoenix, Ariz., archt. CD 10/24/58.

HEAVY CONSTRUCTION—LB & CA

▲† **R. A. Heintz Constr. Co.**, P. O. Box 1806, Portland, Ore., LB **$2,181,323**, est. $2,913,559, (10 bidders), Prosser Creek Dam, Little Truckee River, Washee Proj. Lyon Co., Spec. DC 5197, NEVADA. Bureau Reclamation, Dpt. Interior, Carson City, Nev. Bids Nov. 12. CD 10/21.

▲ **OREGON**—State Hy. Comn., Highway Bldg., Salem,
Peter Kiewit Sons Co., Box 177, Vancouver, Wash., CA **$2,138,285**, Willamette River Bridge on Pacific Hy. and Judkins Point Overcrossing on McKenzie Hy., FAIP I-5-4(33)193 and U-UG-161(26), Lane Co. Bids Nov. 3, awarded Nov. 5. CD 11/9, under LB.

▲ **Macco Constr. Co.**, 14409 South Paramount Blvd., Paramount, Calif., LB **$2,361,267**, (13 bidders), bulkheads and sanitary sewers, Marine del Rey Small Boat Harbor, Spec. 1979-CSD, LOS ANGELES, CALIF. Bd. Supervs., Los Angeles County, 501 Hall of Records, Los Angeles, Calif. Bids Nov. 12. CD 10/21.

▲† **Del E. Webb Constr. Co.**, 3350 Wilshire Blvd., Los Angeles, Calif., CA **$4,721,786**, rocket test stand, Edwards Air Force Base, ENG-04-353-60-25, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Nov. 5. CD 10/19.

BUILDINGS—LB & CA

▲ **Broadhead Constr. Co.**, 4147 E. Speedway Blvd., Tucson, Ariz., CA **$2,500,000**, 250 units Cliff Manor MOTOR HOTEL, 100 acre site, 6000 N. Oracle Rd., TUCSON, ARIZ. Foothills Estates, Inc., c/o Alan A. Dailey & Assocs., archts., 4810 N. 7 Ave., Phoenix, Ariz.

▲ **Swinerton & Walberg Co.**, 200 Bush St., San Francisco, Calif., CA Est. **$1,000,000**, 70,000 sq. ft. CARD MANUFACTURING PLANT, CAMPBELL, CALIF. International Business Machines Corp., Supplies Div., 590 Madison Ave., New York 22, N. Y. Charles Luckman Assocs., 9220 Sunset Blvd., Los Angeles, Calif., archts.

▲ **Merco Constr. Co.**, 6057 Venice Blvd., Los Angeles, Calif., LB **$4,259,980**, (5 bidders), Phase 2, Type 1, rein.-con. PIERCE COLLEGE addns., 6201 Winetta St., Woodland Hills, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Nov 13. CD 10/23.

▲ **John E. Branagh & Son, Inc.**, 42 LaSalle Ave., Piedmont, Calif., LB **$4,175,000**, (5 bidders), Hill Area HIGH SCHOOL, Skyline Blvd., OAKLAND, CALIF. Oakland City Unified School Dist., 1025 2nd Ave., Oakland, Calif. Bids Nov. 10. CD 10/15.

▲ **Theo. G. Meyer & Sons**, 200 Quint St., San Francisco, Calif., CA **$2,354,466**, two 12 story and one 11 story, 194 dwelling units Ping Yuen Annex Low-Rent HOUSING, Broadway, Cordelia and Pacific Sts., SAN FRANCISCO, CALIF. City and San Francisco Housing Auth., 440 Turk St., San Francisco, Calif. Bids Nov. 4. CD 11/11, under LB.

▲ **Mahy Enterprises, Inc.**, 8923 La Mesa Blvd., La Mesa, Calif., Owner Builds, **$1,281,280**, 130 DWELLINGS, Terrace Unit No. 2 Tract, SANTEE, CALIF.

▲ **Hawaiian Dredging & Constr. Co.**, 1350 Ala Moana St., Honolulu, Hawaii, LB **$1,600,000**, (2 bidders) 10 story, 110 units each, SURF RESORT, swimming pool, Island of Kauri, Kialapaki Beach, HAWAII. Inter-Island Resorts, 305 Royal Hawaiian Ave., Honolulu, Hawaii. Frank Robert & Theodore Uierra, 1633 Kapiolani Ave., Honolulu, Hawaii, archts. CD 6/12.

CANADA

BUILDINGS—SLC

▲ **Ont., Toronto**—YMHA-YWHA—Young Men's Hebrew Assn. & Young Women's Hebrew Assn., 750 Spadina Ave., soon lets contract, 3 story, 200 x 242 ft. YMHA and YWHA branch bldg., North York. $1,000,000. Harry B. Kohl, 1407 Yonge St., archt. W. Sefton & Assocs., Ltd., 901 Yonge St., engrs. CD 10/21.

HEAVY CONSTRUCTION—LB & CA

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria,

P. F. Law Constr. Ltd., 500 Beatty St., Vancouver, B. C. LB **$1,374,243**, clearing, grubbing 130 acres, excavating 750,000 cu. yd. solid rock, 410,000 cu. yd., other materials, Southern Trans Provincial Hy., Grand Forks-Greenwood Dist.

▲ **Robert McAlpine Ltd.**, Box 249, Weston, Ont., LB **$1,279,561**, 4-lane extension to Lawrence Ave. E., across the Don Valley, incl. 4 bridges and wid'n. Lawrence Ave. to four lanes, TORONTO, ONT. Metropolitan Toronto Roads Dpt., 75 Eglinton Ave. E., Toronto, Ont. CD 10/28.

BUILDINGS—LB & CA

▲ **Dell Constr. Co. Ltd.**, 2461 Bloor St. W., Toronto, Ont., LB **$3,735,001** (8 bidders), Contracts A and B and C, 400 HOUSING UNITS, complete with services and outside works, at army camp, PETAWAWA, ONT. Central Mortgage & Housing Corp., 650 Lawrence Ave. W., Toronto, Ont. Bids Nov. 10. CD 11/5.

▲ **Eastern Constr. Co. Ltd.**, Box 96, Walkerville, Ont., CA **$2,225,000**, 3 story, 75,000 sq. ft. CITY-COUNTY BLDG., Christina St., SARNIA, ONT. City, City Hall, Sarnia, Ont. Bids Oct. 21, awarded Nov. 9. CD 10/28, under LB.

▲ **Otis Elevator Co. Ltd.**, 802 St. James W., Montreal, Que., CA **$5,000,000**, supply, install 38 elevators, 16 escalators for 40 story PLACE VILLE MARIE OFFICE-STORE, MONTREAL, QUE. Webb & Knapp (Canada) Ltd., 1001 St. Catherine W, Montreal, Que. Awarded Nov. 10. CD 11/29/57.

▲ **Como Constr. Ltd.**, 1500 St. Vallier St., Quebec City, Que., CA 48,000,000 sq. ft. ABSTRACT SCIENCE BLDG., QUEBEC CITY, QUE. Universite de Laval, Quebec City, Que. Total est. **$16,000,000-$18,000,000**. CD 11/4;

Francois Marquis & Sons Ltd., 169 Cremazie St. W., Montreal, Que. CA, APPLIED SCIENCE BLDG. (Quebec City, Que.).

▲ **W. C. Wells Constr. Co. Ltd.**, Avenue F and 23rd St., Saskatoon, Sask., CA **$1,431,470**, 5 story FEDERAL BLDG., 4th Ave., SASKATOON, SASK. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Sept. 30, awarded Nov. 9. CD 10/21, under LB.

LATIN AMERICA

BUILDINGS—BA

▲ **Argentina, Parana**—COURT—BA 12/23—Ministerio de Obras Publicas, Casa de Gobrierno, court bldg. $1,200.000

PROPOSED PROJECTS

WATER SUPPLY

▲ **Calif., Sacramento**—Water Dpt., City Hall, 9th and I Sts., imprv. city water sys. (First Phase) incl. water pipe lines in east zone, **$1,050,000**, Constr. 1960-1961.

water pipe lines in west zone (First Phase) **$2,400,000**, Constr. 1960-1961.

Riverside water treatment plant and pumps, **$1,640,000**, Constr. 1960-1961.

imprv. city water sys., incl. American River filtration plant and pumps, **$8,180,000**, Constr. 1962-1964.

intake facilities for American River filtration plant, **$1,020,000**, Constr. 1962-1964.

major pipe lines, east zone, **$1,700,000**, Constr. 1962-1964.

American River filtration plant reservoirs, **$1,250,000**, Constr. 1962-1964. CD 11/9.

▲ **Mo., Columbia**—City, City Hall, defeated $9,910,000 bonds Oct. 27, 2 deep wells **$360,000**, direct intake water plant **$3,050,180**, power plant expansion **$4,728,250**, water and electric dist. lines **$1,313,000**. CD 10/15.

▲ **O., Youngstown** — Comrs. Mahoning Co., Courthouse, voted bonds Nov. 3, West Branch Reservoir. **$2,500,000**.

▲ **Va., Newport News**—Dpt. P. Wks., City Hall, voted **$6,000,000** bonds Nov. 3, water supply, incl. 3.5 billion gal. dam, 43 in. pipe line to Diascund Creek.

SEWERS, WASTE DISPOSAL

▲ **Calif., Sacramento**—Northeast Area Sanitation Dist., Dpt. Utilities, County P. Wks. Dpt., 827 7th St., Sacramento,

sewage treatment plant in Carmichael and other northeast Sacramento County residential districts, **$2,900,000**.

60 mi. trunk lines for sewage disposal, Carmichael and other northeast Sacramento County residential districts, **$7,000,000**. DeWante & Stowell, 916 21st St., consult. engrs. Constr. in stages to begin next summer. CD 11/9.

▲ **Mich., Dearborn**—City, City Hall, voted bonds Nov. 3, storm sewers. **$5,700,000**. CD 8/27.

▲ **N. C., Rocky Mount**—City, City Hall, storm sewerage sys. **$2,600,000**. Pierson & Whitman, 1618 Glenwood Ave., Raleigh, consult. engrs.

▲ **O., Cincinnati**—Bd. Comrs. Hamilton Co., Courthouse, defeated **$4,000,000** bonds Nov. 3, storm, sanitary sewers. CD 7/24.

▲ **O., Cleveland**—City, City Hall, Zone 14, voted bonds Nov. 3, sewers, **$6,000,000**. CD 6/9.

▲ **O., Strongville**—Village, 18688 Royalton Rd., defeated bonds Nov. 3, sewers, **$2,630,000**. John A. Petsche, 13868 Bennett Rd., Cleveland, Zone 33, consult. engr. CD 6/26.

▲ **Va., Roanoke**—City, City Hall, storm drain and sewerage, Williamson Road Region, **$6,202,400**; drainage facilities Lick Run and Tinker Creek, **$3,503,600**. Hayes, Seay, Mattern & Mattern, Boush St. and Olney Rd., Norfolk, consult. engrs. R. Cletus Broyles, c/o owner, staff engr. CD 6/30/44.

BRIDGES

▲ **O., Cleveland**—Bd. Comrs. Cuyahoga Co., County Administration Bldg., 1219 Ontario St., Zone 13,

grade separation, W. 150 St. and N.Y.C. R.R., **$2,000,000**.

grade separation, Babbitt Rd., at Nickel Plate R.R., **$1,500,000**.

grade separation, Chardon Rd. at Nickel Plate R.R., **$1,500,000**.

grade separation, Rockside Rd. at Pennsylvania R.R. **$2,000,000**. Constr. all foregoing in 1960. Albert S. Porter, Standard Bldg., Zone 13, county engr.

STREETS AND ROADS

▲ **O., Cincinnati**—Bd. Comrs. Hamilton Co., Courthouse, defeated **$4,000,000** bonds Nov. 3, road imprvs. CD 7/24.

▲ **O., Cleveland**—Bd. Comrs. Cuyahoga Co., County Administration Bldg., 1219 Ontario, Zone 13, widening, resurf. W. 130th St. from Bagley Rd. to just north of Brookpark Rd. **$2,569,000**. Frank Woodruff, 3482 Lee Rd., Zone 20, consult. engr. Albert S. Porter, Standard Bldg., Zone 13, co. engr. Constr. first section in Spring 1960. CD 10/8.

▲ **O., Cleveland**—Bd. Comrs. Cuyahoga Co., County Admin. Bldg., 1219 Ontario, Zone 13, grading, draining, paving Rockside Rd. from Brecksville to Turney Rd. **$3,000,000**. Alden E. Stilson Assocs., 245 N. High St., Columbus, consult. engrs. CD 7/2

▲ **Tex., Pasadena**—City, City Hall, 24 street paving units and imprvs. **$2,506,973**, rein.-con sidewalk. **$100,000**. CD 9/24.

▲ **VIRGINIA**—State Dpt. Hys., 1221 E. Broad St., Richmond,

Halifax Co.—dual lane highway linking US 58 with US 360. South Boston, **$750,000**.

Warwick Co.—limited access road, Newport News to Tide Mill Gate, Langley Field, **$3,000,000**.

AMERICANS ABROAD

▲ **Turkey, Ismit**—REFINERY—California-Texas Oil Co., 380 Madison Ave., New York, N. Y., U.S.A., and Turkish Petroleum Co., Ankara, 20,000 bbl. per day refinery, near Istanbul. **$25,650,000**.

PUERTO RICO

▲ **PUERTO RICO**—P. Wks. Dpt., Stop 22, San Juan, 1.7 mi. section roadway over problem soils, **$7,000,000**. Barrett Associated Engineers, Ltd., 4316 N. High St., Columbus, O., making studies.

PUBLIC BUILDINGS

▲ **Calif., Petaluma**—SCHOOLS—Petaluma High School Dist., voted $3,000,000 bonds high school, three Junior High Schools. **$8,000,000**.

▲ **Calif., Sacramento**—SCHOOLS—Sacramento City Unified School Dist., 1619 N. St., plans by Harry J. Devine, superv. archt., 1012 J St.,

1,100 pupil Fern Bacon Junior High School, **$2,000,000**.

1,100 pupil Junior High School east of John Bidwell Elementary School, **$2,000,000**.

1,100 pupil Junior High School north of Cabrillo Elementary School, **$2,000,000**.

2,000 pupil Senior High School south central portion of school district, **$4,000,000**.

Sacramento City Junior College Facilities, incl. science bldg., men's physical education bldg. addn., cafeteria, **$2,500,000**. CD 11/9.

▲ **Calif., San Francisco**—CIVIC CENTER AUDITORIUM—City and San Francisco County, City Hall, voted **$7,575,000** bonds Nov. 3, imprvs. Civic Center Auditorium. CD 7/13.

▲ **Colo., Aurora**—HOSPITAL—Aurora General Hospital Assoc., 719 Scranton, voted Nov. 3, formation of

(Continued on page 80)

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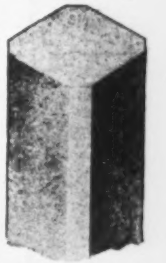

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Fabricating facilities include large car bottom-heating and stress-relieving furnaces, heavy-plate bending rolls, a variety of presses and press brakes, the latest in welding and X-raying equipment, plate shears, edge planers, boring mills and drills.

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Efficient and economical construction service, too!

American Bridge has the most complete range of construction equipment in the industry, plus skilled personnel backed by over fifty years of experience. *Anything we fabricate, we can erect.*

And, because of the strategic location of our Orange plant on water, rail and truck routes, you can count on fast delivery and low shipping costs.

For top-quality plate work, contact any of the offices listed below. Or write for our booklet which describes the facilities and services available from our Orange plant.

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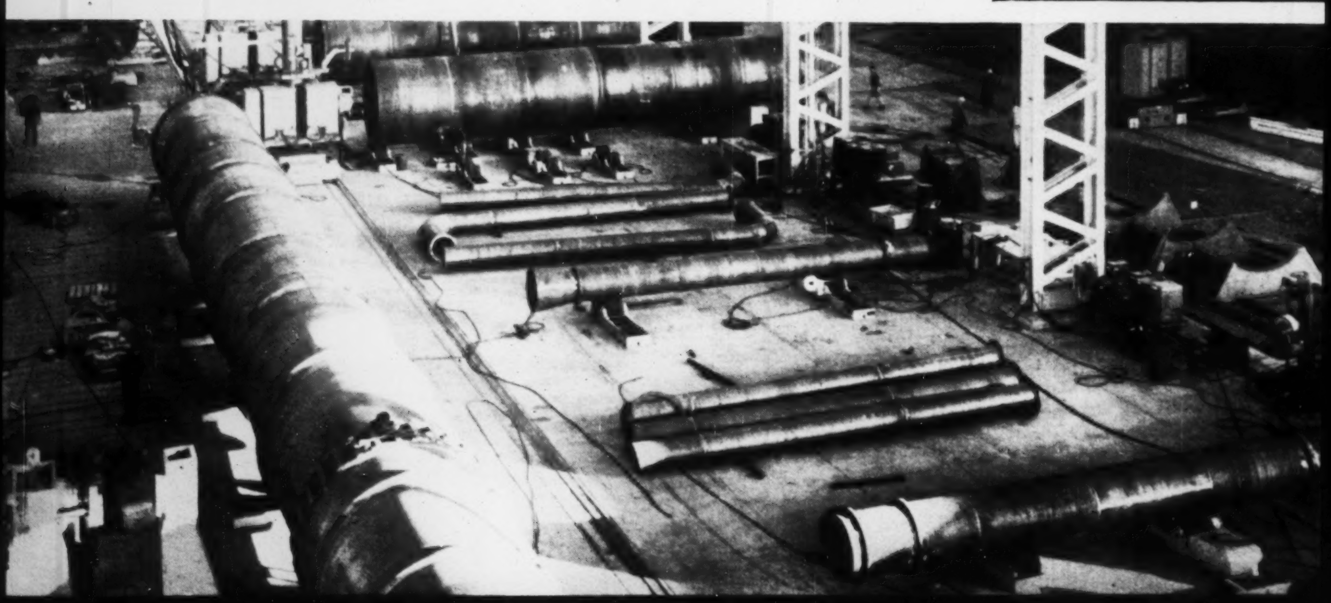
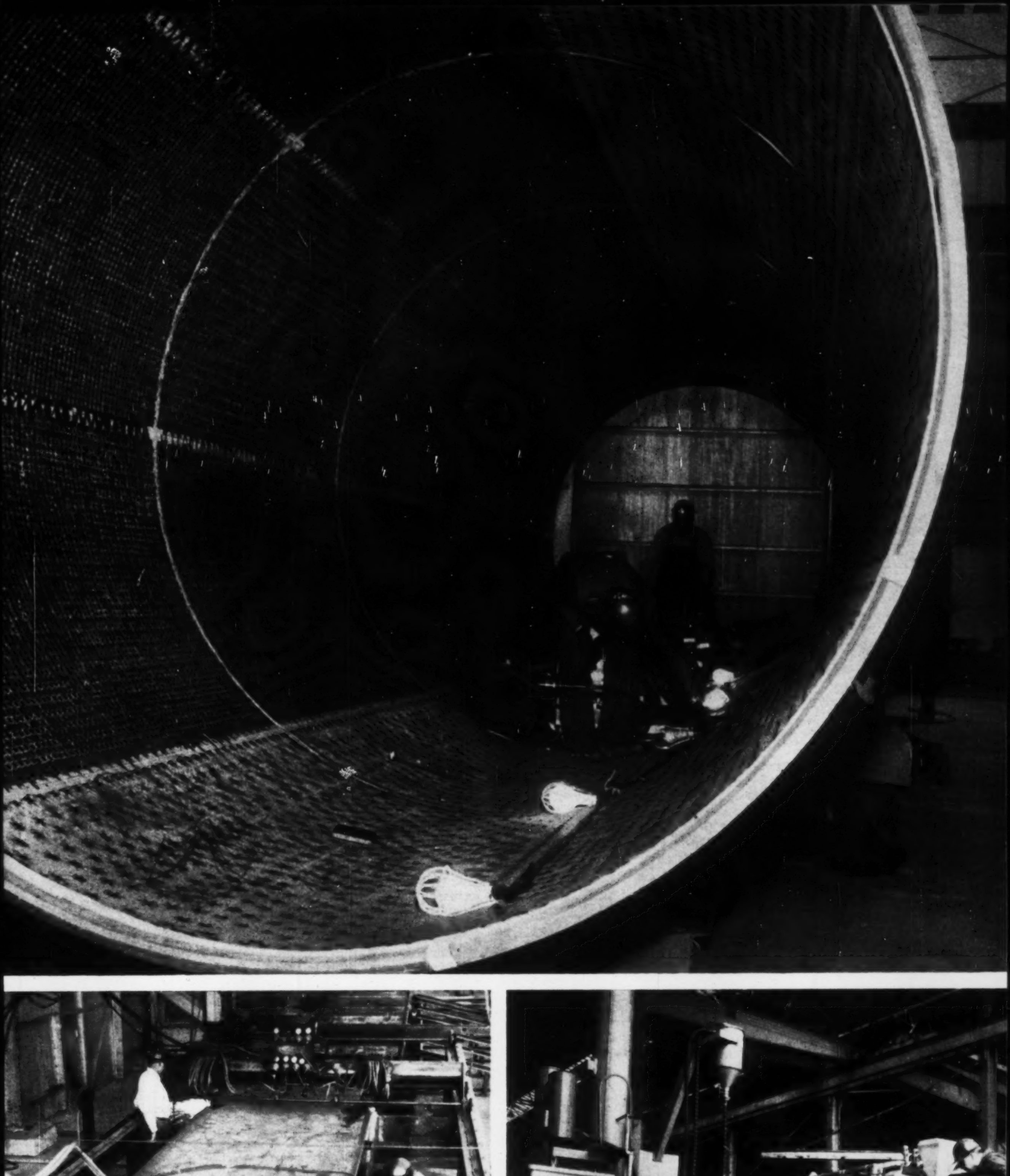
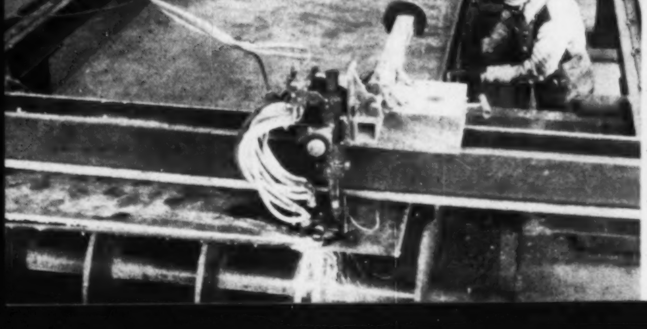
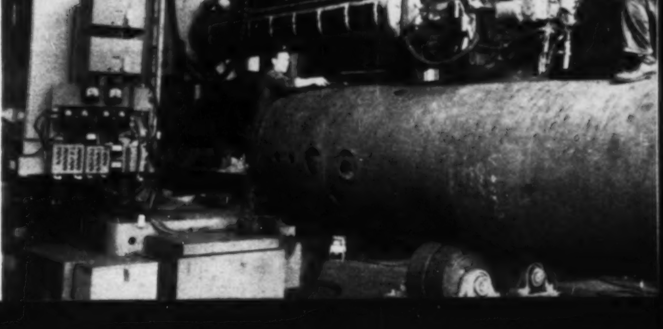








(Continued from page 77)

Hospital Dist., will constr. 100-bed hospital. **$2,000,000.** CD 8/11.

▲ **Colo., Westminster**—SCHOOL—School Dist. No. 50, 7200 Lowell Blvd., voted **$3,500,000** bonds Oct. 30, high school, Junior High School and 4 elementary schools. Paul R. Reddy, 105 Fillmore St., and Roland M. Johnson, 1731 York St., Denver, archts. CD 10/21.

▲ **Conn., Hartford**—COLISEUM—City, City Hall, defeated bond Nov. 3, coliseum, in Constitution Plaza Redevelopment Area, **$3,850,000.** CD 10/5.

▲ **Conn., New Haven**—GARAGE, etc.—New Haven Parking Auth., City Hall, plans by Paul Rudolph, 31 High St., 7 story garage and 1 story retail store, Church St. Redevelopment Project. **$3,500,000.** CD 6/19/57.

▲ **Ga., Atlanta**—CHEMISTRY-CERAMIC ENGINEERING BLDG.—University System of Georgia, Building Auth., 244 Washington St. S.W., plans by Finch, Alexander, Barnes, Rothschild & Paschal, 70 Fairlie St. N.W., chemistry-ceramic engineering bldg. **$2,400,000.** CD 10/23/58.

▲ **Idaho, Arco** — NUCLEAR TEST PLANT — Atomic Energy Comm., Idaho Operations Office, Idaho Falls, plans by C. F. Braun & Co., 1000 S. Fremont St., Alhambra, Calif., nuclear test plant to test reactor cores of either pressurized or boiler water environment, **$5,000,000.** General Nuclear Engineering Corp., Dunedin, Fla., consult. engrs. CD 9/9.

▲ **Minn., St. Paul**—SCHOOLS—Bd. Educ. Special School Dist. No. 2, 615 Court House, voted **$23,500,000** bonds Nov. 3, schools. G. S. Silverman, City Hall and Court House, owner's archt. CD 10/1.

▲ **N. J., Bayville**—SCHOOL—Ocean Co. Central Regional High School Dist.; plans by Ernest Thornell Brown, 7 Watchung Ave., Plainfield, Junior High School, **$1,800,000;** high school, over **$2,000,000.** Michael M. Burris, 485 Engle St., Englewood, consult. engr. CD 8/27.

▲ **N. J., Matawan**—SCHOOL—Bd. Educ., Borough of Matawan, Junior High School, **$2,500,000.**

▲ **N. Y., Bronxville**—SCHOOLS—Village, 200 Pondfield Rd., voted bonds **$2,540,000** Nov. 10, elementary schools; **$600,000** bonds for high school addn.

▲ **N. C., Raleigh**—Bd. Comrs. Wake Co. and City of Raleigh, Courthouse, **$5,600,000** bond election Dec. 8, schools. CD 2/5/57.

▲ **O., Ashland**—SCHOOLS—Bd. Educ., voted bonds Nov. 3, schools. **$3,450,000.** Fulton, DelaMotte, Larson & Nassau, 6014 Euclid Ave., Cleveland, Zone 3, archts. CD 6/30.

▲ **O., Ashtabula**—SCHOOL—Bd. Educ., Ashtabula-Edgewood School Dist., voted bonds Nov. 3, school bldg. program. **$2,850,000.** CD 8/26.

▲ **O., Canton**—COUNTY JAIL—Comrs. Stark Co., Court House, voted 0.21 mill tax levy Nov. 3, county jail. **$2,260,000.** Firestone & Motter, 1412 Cleveland Ave. N.W., and Harry C. Frank, 203 Market St., archts. CD 7/30.

▲ **O., Canton**—SCHOOLS—Bd. Educ., Plain Local School Dist., 1215-44th St. N. W., voted bonds Nov. 3, schools, **$2,550,000.** CD 5/11.

▲ **O., Cleveland**—HOSPITAL—Comrs. Cuyahoga Co., 451 County Admin. Bldg., 1219 Ontario, Zone 13, voted bonds Nov. 3, expansion Metropolitan Hospital. **$2,500,000.** CD 7/23.

▲ **O., Columbus**—SCHOOLS—Bd. Educ. Southwestern Local School Dist., 1390 Harrisburg Pike, defeated bonds Nov. 3, school program. **$2,250,000.** Will be re-submitted. CD 7/22.

▲ **O., Columbus**—SCHOOLS—Bd. Educ., 270 E. State St., voted bonds Nov. 3, schools. **$29,850,000.** CD 7/16.

▲ **O., Dayton**—LIBRARY—City, City Hall, voted 1-mill levy Nov. 3, public library. **$2,400,000.** Freeman A. Pretzinger, Reibold Bldg., Dayton, archts. CD 2/4.

▲ **O., Findlay**—SCHOOLS—Findlay Bd. Educ., 1001 Blanchard, defeated **$4,800,000** bonds Nov. 3, schools. CD 7/22.

▲ **O., Garfield Heights**—SCHOOL—Garfield Heights Bd. Educ., 4900 Turney Rd., voted bonds Nov. 3, high school, **$3,000,000.** CD 7/7.

▲ **O., Mansfield**—SCHOOLS—Bd. Educ., voted **$6,000,000** bonds Nov. 3, schools. CD 7/7.

▲ **O., Reading**—SCHOOLS—Reading City School Dist., voted bonds Nov. 3, schools, **$2,100,000.** Sullivan, Isaac & Sullivan, 1800 Reading Rd., archts.-consult. engrs. CD 7/16.

▲ **O., South Euclid**—SCHOOL—South Euclid Bd. Educ., 4777 Farnhurst Rd., voted bonds Nov. 3, high school addn., **$2,050,000.** Spahn & Barnes, 1950 Lee Rd., Cleveland, Zone 18, archts. CD 7/20.

▲ **O., Springfield**—SCHOOLS—Bd. Educ., 40 College Ave., voted bonds Nov. 3, school, **$3,900,000.** CD 11/13/56.

▲ **O., Steubenville** — SCHOOLS — City, School Dist., voted bonds Nov. 3, schools, **$4,000,000.** Joseph Hoover, 333 Boulevard of the Allies, Pittsburgh, Pa., archt. CD 7/16.

▲ **O., Toledo**—SCHOOLS—Bd. Educ., 1900 Linwood St., Toledo, voted **$20,000,000** bonds Nov. 3, schools. CD 6/18.

▲ **O., Toledo**—SCHOOLS—Bd. Educ. Adams Twp. School Dist., 1800 Krieger Dr., voted bonds Nov. 3, school bldg. program: two grade schools, Junior High School, repairs to existing bldgs. **$2,600,000.** McLaughlin & Keil, 500 Dominion Bldg., Lima, archts. CD 5/27.

▲ **O., Toledo**—SCHOOL—Oregon Local School Dist., 5721 Seaman Rd., Zone 5, plans by Bellman, Gillette & Richards, 1600 Madison, Junior High School, N. Curtice Rd., Jersusalem Twp., between Rte. 2 and Seaman St., **$2,000,000.** Bids in Spring. CD 11/10/58.

▲ **O., Willoughby**—SCHOOLS—Willoughby-Eastlake Bd. Educ., 4284 Center St., voted bonds Nov. 3, schools. **$3,400,000.** CD 6/17.

▲ **Pa., McKeesport**—SCHOOL—Port Vue-Liberty Jt. School Dist., secondary school, Project 622. **$2,500,000.**

▲ **Pa., Phila.**—HOSPITAL—General State Auth., 18th and Herr Sts., Harrisburg, plans by Engineering Consultants, 843 N. 19th St., TB hospital, Henry R. Landis State Hospital, Corinthian and Girard Sts. **$2,400,000.** Bids in April. CD 10/2/57.

▲ **Pa., University Park**—NUCLEAR STUDY FACILITY, etc.—General State Auth., 18 and Herr Sts., Harrisburg, facility for nuclear study and research, incl. hot cells, work rooms and laboratories, 3 story, concrete, steel structure to house accelerators, 2 story nuclear science laboratory, **$1,200,000;** 4 story Physical Education Bldg., South Wing addn. **$2,750,000;** 4 story, rein. conc., steel Arts and Humanities Bldg. **$3,500,000;** 2 story, bsmnt. Electrical Engineering Bldg. addn. **$1,000,000;** utilities extension and revision, **$750,000,** for Pennsylvania State University, A. F. Jones, c/o owner, ch. engr.

▲ **Tex., Lubbock**—SCHOOLS—Lubbock Ind. School Dist., 1715 26th St., voted **$7,800,000** bonds Nov. 3, two Junior High Schools, 7 elementary schools and remodeling.

▲ **Tex., Midland**—SCHOOLS—Midland Independent School Dist., voted bonds Nov. 3, high school, **$2,000,000;** Junior High School **$1,200,000;** Elementary School No. 1 **$425,000;** Elementary School No. 2, **$425,000;** Elementary School No. 3, **$425,000.** CD 10/29.

▲ **Va., Portsmouth**—COURTHOUSE, etc.—Bd. Supervs. Norfolk County, county courthouse and offices, Great Bridge. **$2,500,000.**

▲ **Wash., Yakima**—COURTHOUSE—Yakima Co., County Courthouse, plans by J. S. Villesvik, 109 N. 3 St., 5 story, 85,000 sq. ft. courthouse addn. **$2,300,000.** Work may start next year. CD 7/13.

COMMERCIAL BUILDINGS

▲ **Calif., Alisal**—SHOPPING CENTER—Percy A. Cannis & Harold Camping, 5275 Claremont, Oakland, 40,000 sq. ft. Alisal Center Shopping Center, 4 acre site, **$2,000,000.** Constr. to begin January 1960.

▲ **Fla., Daytona Beach**—SHOPPING CENTER—R. M. Thompson, c/o L. M. Server Consultants, Inc., 712 Grand Central Ave., Clearwater, plans by Frank R. Mudano, AIA, First Federal Bldg., Clearwater, 190,000 sq. ft. Holly Hill Plaza Shopping Center, Holly Hill. **$2,000,000.** Southeastern Engineering Co., First Federal Bldg., Clearwater, consult. engr.

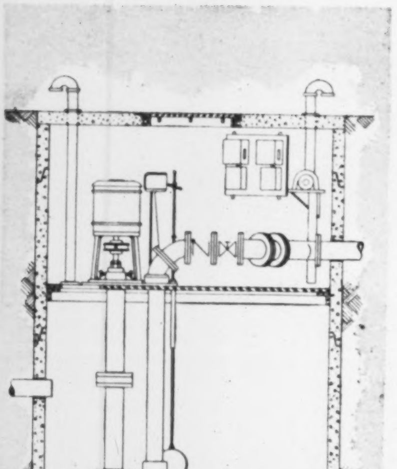
(Continued on page 82)

AUTOMATIC

UNDERGROUND LIFT STATION

with the weil HEAVY DUTY

Vertical Screenless Sewage Pumps



When sewage or drainage water cannot drain by gravity to the main trunk sewer or treatment plant an automatic lift station is required. Illustrated at the left is the most economical installation to build employing the submerged style vertical ejector in the wet pit.

The motor is totally enclosed and equipped with a water-tite conduit box. Float switch, starters, alternator (for duplex units), and disconnect switches are all NEMA-4 water-tite.

The piping is simple and economical. Gate valves may be omitted if necessary. A check valve should be used in each horizontal discharge pipe.

Pit may be constructed of concrete tile. Pit may be as small as 84" diameter. A cover separates the wet pit and the motor room at top and an atmospheric vent pipe runs from wet pit to a point above ground. A ventilating blower may be installed for the upper section of the pit.

For complete specifications ask for Bulletin C-900. Weil Engineers are always available to provide technical information for your special applications.

This **NON-CLOG** Impeller built into the WEIL Sewage Pump supplies the ideal method of pumping sewage and unscreened liquids containing solids.

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Treatment on the 68-year-old Pier 3 was done by an Allied Chemical customer

68 years old—still sound! The true test of Creosote protection

Still sound—still useful.

High retention is the key to long-life service.

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During those 68 years, the piling was exposed to marine borers, but it showed no evidence of attack. Also, this piling was subjected to mechanical wear and abrasion from floating debris in the fluctuating tide zone, but due to the deep penetration of Allied Chemical Creosote, the piling was still sound and serviceable.

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In addition, ALLIED CHEMICAL CREOSOTE features:

MULTIPLE TOXICITY: Marine borers, fungi and wood destroying insects cannot develop immunity to the many toxic agents in creosote.

PENETRATION EASILY CHECKED: You can see the depth of penetration in any cross-section.

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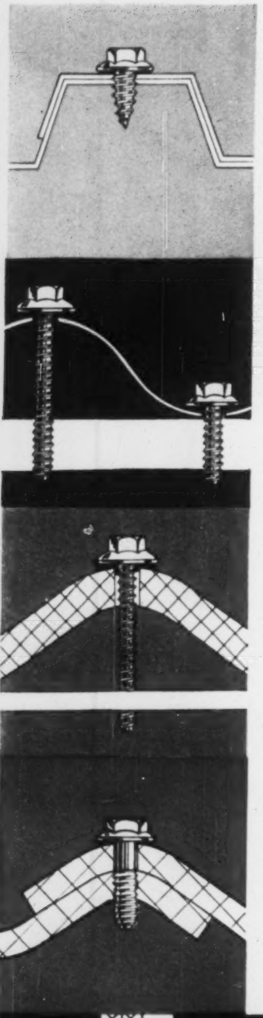

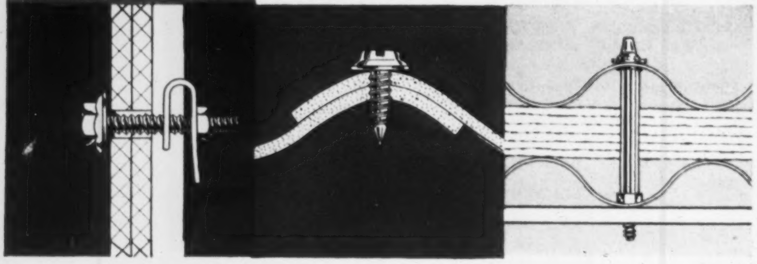

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*Patent pending

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(Continued from page 80)

▲ **Fla., St. Petersburg**—SHOPPING CENTER—Petwinston, Inc., c/o W. B. Wiley, 8301 4 St. North, plans by Frank R. Mudano, First Federal Bldg., Clearwater, 452,000 sq. ft. Winston Plaza Shopping Center, 9 St. N. 77 to 83 Aves., incl. air-conditioned malls. **$6,000,000.** Southeastern Engineering Co., First Federal Bldg., Clearwater, consult. engrs.

▲ **Hawaii, Makaha Beach**—HOTEL APARTMENT—James Swindle & Don Ramey, c/o Lawson Butt Jr., archt., Hawaiian Life Bldg., Honolulu, 27 story, steel frame, concrete hotel apartment. **$7,000,000.**

▲ **Ill., Chicago**—AUDITORIUM THEATER—Roosevelt University, 430 S. Michigan Ave., Chicago, Zone 5, auditorium theater alterations, **$2,700,000.**

▲ **Ill., Palatine**—HOTEL, etc.—Seay & Thomas, Inc., 111 W. Washington St., Chicago, Zone 2, plans by Friedman, Alschuler & Sincere, 223 W. Jackson Blvd., Chicago, Zone 6, 300-room hotel, near Arlington Park race track, convention hall, swim pool, **$4,500,000.**

▲ **N. Y., Aurora** — SEMINARY — Catholic Diocese of Buffalo, 35 Lincoln Parkway, Buffalo, seminary, 80-acre site, Knox Rd. **$3,000,000.** CD 9/25, under N. Y., Buffalo.

▲ **N. Y., New York**—RESEARCH CENTER—St. Vincent's Hospital, 7th Ave. and 11th St., New York, Zone 11, 10 story research center adjoining Cardinal Spellman Pavilion at 133-141 West 11th St. **$4,000,000.**

▲ **N. Y., New York**—APARTMENT—Vine Realty Corp. & Alto Investing Corp., 119 W. 40th St., New York, Zone 19, plans by Richard Roth, 400 Park Ave., New York, Zone 22, 19 story apartment, East End Ave. **$2,800,000.**

▲ **O., Cleveland**—BANQUET HALL—Sheraton Corp. of America, 470 Atlantic Ave., Boston 10, Mass., plans by Perry, Shaw, Hepburn & Dean, 31 St. James Pl., Boston, Mass., 2500 seat banquet hall, **$2,000,000.** CD 11/5.

▲ **S. C., Spartanburg**—SHOPPING CENTER—C. K. Assocs., c/o William Cox, Woodruff, plans by David W. Cecil, 180 N. Dean St., 200,000 sq. ft., brick, steel shopping center, Pine St. Extension, **$2,500,000.**

▲ **Tex., Pasadena**—BANK, etc.—First National Bank, 10-12 story bank-office, 5 acre site, Southmore and Tatar Sts. **$2,000,000.**

▲ **Va., Richmond**—HOUSING—Skyview Terrace Corp., Mutual Bldg., housing subdivision, Colorado Ave., West of Maymont. **$4,000,000.**

▲ **Va., Roanoke**—SHOPPING CENTER—Towers Shopping Center, Inc., Colonial and Broandon Ave., shopping center. **$2,500,000.**

▲ **Wash., Seattle**—HOSPITAL—Virginia Mason Hospital, 1111 Terry St., plans by Naramore, Bain, Brady & Johanson, 904 7 Ave., hospital addn., **$2,600,000.** Bids next year. CD 9/14.

▲ **Ont., Kingston**—HOSPITAL—Religious Hospitallers of the Hotel Dieu, plans by Drever & Smith, 81 Brock St., 1 and 5 story hospital addns. **$4,200,000.** Agnew, Peckham & Assocs, 200 St. Clair Ave. W., hospital consultants.

INDUSTRIAL BUILDINGS

▲ **Calif., Redding**—PLANT—Calaveras Cement Co. (Div. Flintkote Co.), 315 Montgomery St., San Francisco, Zone 4, 1,500,000 bbl. per year cement plant. **$14,000,000.**

▲ **Calif., Sacramento**—WAREHOUSE-OFFICES—Safeway Stores, Inc., Industrial Dpt., 40th and Jackson Sts., Oakland, warehouse-offices, incl. 442,500 sq. ft. distr. center, Florin-Perkins Rd., near here. **$6,000,000.** Bids in July or Aug.

▲ **Mass., Bedford** — COMPUTER BLDG., etc. — Mitre Corp., L. C. Hanscom Field, c/o U. S. Eng., 424 Trapelo Rd., Waltham, plans by Geometrics, Inc., 23 Arrow St., Cambridge, computer bldg. offices. **$4,000,000.** Bids in December. CD 5/13.

▲ **N. J., Bloomfield** — RESEARCH CENTER — Colgate-Palmolive Co., 509 Madison Ave., New York 22, N. Y., will not constr. 2 story, 200,000 sq. ft. research center. **$5,000,000-$8,000,000.** Project abandoned. CD 3/16/56.

▲ **Pa., Conshohocken**—MILL—Alan Wood Steel Co., Ivy Rock, steel plate mill. **$3,000,000.** CD 12/5/55.

▲ **Wash., Hoquiam**—SODA BASE RECOVERY PROCESS INSTALLATION—Rayonier, Inc., 161 E. 42 St., New York, N. Y., installing soda base recovery process at pulp plant, to avoid pollution, **$7,500,000.**

UNCLASSIFIED

▲ **Calif., San Francisco**—PARK—City and San Francisco County, City Hall, defeated **$2,970,000** bonds Nov. 3, park at Ferry Bldg., Embarcadero. CD 7/13.

▲ **Mass., Norwood**—SPORTS STADIUM—Owner, c/o William Sullivan, Metropolitan Coal & Oil Co., 65 State St., Boston, plans by Robert E. Johnson, 66 Beacon St., Boston, Mass., sports stadium. **$10,000,000.** Constr. 1960.

▲ **O., Cleveland** — RECREATION IMPRVS. — City, City Hall, voted bonds Nov. 3, recreation imprvs. **$3,000,000.** CD 7/8.

▲ **O., Toledo**—PRESQUE ISLE SITE DEVELOPMENT—Toledo-Lucas County Port Authority, voted bonds Nov. 3, development of Presque Isle site. **$4,500,000.** CD 9/23.

▲ **Pa., Phila.**—MARINA—Phila. Marina, Inc., c/o Philip Klein, Penn Square Bldg., plans by Beryl S. Price, 1911 Pine St., Marina, Delaware River. **$2,000,000.**

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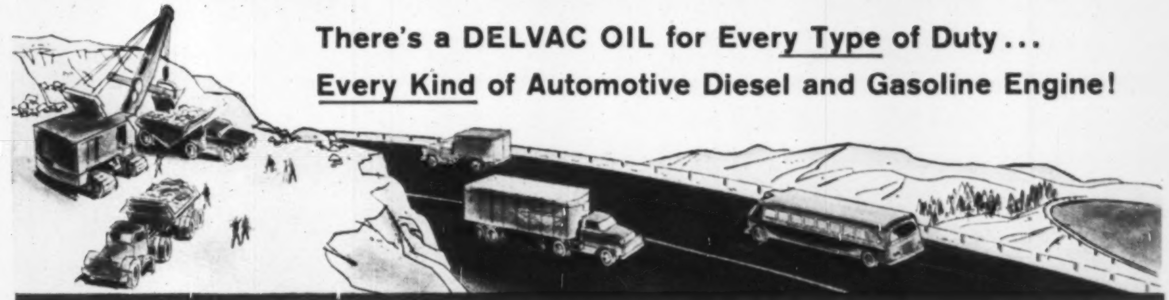

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DELVAC *Special*	For superior all-weather use in all types of commercial vehicles—trucks, buses, contractors' equipment—using diesel, gasoline or LPG engines, under all kinds of operating conditions. **Multigraded**	(SAE 10W-20W-30) with Supplement 1 detergency level	API Service Classification: **MS, DG, DM**

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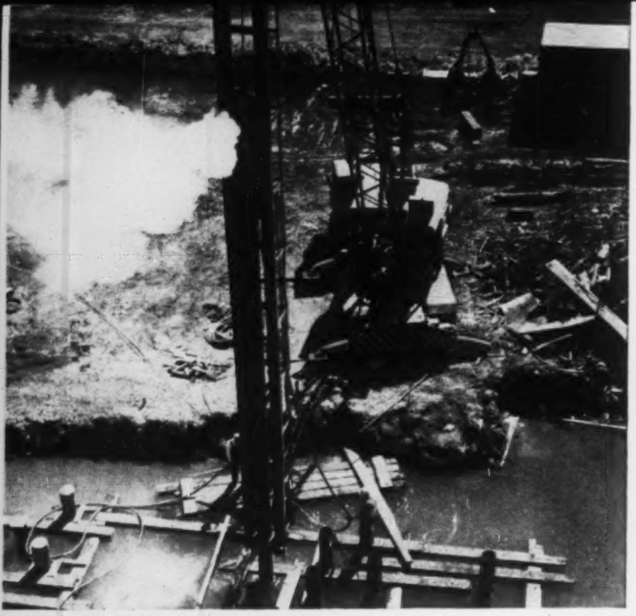

Pile driving in Wisconsin. Bridge Builders, Inc. depends on the positive leveling of Power-Set Outriggers on the MC-530 Moto-Crane to drive 120-foot piles through a lake bottom.

In a California oil field. Valley Crane & Rigging Service set up their Power-Set Outriggers faster than the load can be hooked on. Their 35-ton Lorain Moto-Crane unloads a 30-ton mud pump.

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Set four outriggers in less than a minute . . . take only 20 seconds to retract to an 8-inch clearance for fast move-ups . . . automatically adjust to uneven ground. These are just some of the ways Lorain's exclusive Power-Set Outriggers will speed your operations.

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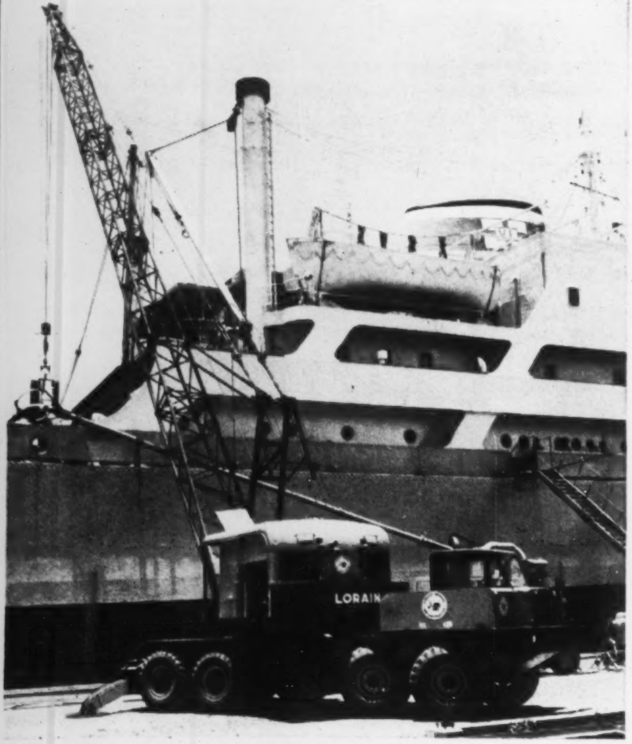
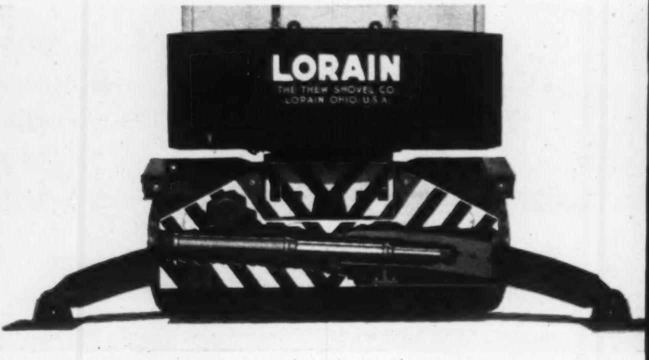


On the docks in Hawaii. Hawaiian Dredging & Construction Company uses Power-Set Outriggers to set up fast. Here the Lorain MC-530W Moto-Crane handles a grain unloader to empty a freighter with speed and efficiency.



Each curved outrigger beam is independently controlled and hydraulically powered to move out and down simultaneously. Positive wedge locks automatically take over when beams are positioned . . . no hydraulic pressure needed to hold beams securely.

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NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
December 2 Maine   December 4, 11 Vermont

BUILDINGS—BA

▲ **Conn., West Hartford**—SCHOOL—BA 11/30—Archdiocese of Hartford, Chancery Office, 140 Farmington Ave., Hartford, Catholic High School, N. Main St. and Wampanoag Dr. $1,000,000. Russell, Gibson & VonDoblen, 1009 Farmington Ave., archts. CD 11/18.

HEAVY CONSTRUCTION—LB & CA

▲† **Franchi Constr. Co.**, 216 Webster St., West Newton, Mass., CA **$2,219,187**, est. approx. $2,000,000, HF radio (T) administration facilities, U. S. Naval Radio Station (T) Cutler, Washington Co., NBy-22966, Spec. No. 22966/58, JONESPORT, ME. Dist. P. Wks. Office, 495 Summer St., Boston, Mass. Bids Oct. 29. CD 11/4, under LB.

▲ **NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., Concord,
Palazzi Corp., 18 School St., Concord, N. H., CA **$1,055,840**, hot b. conc. roadway, three 198.93 and 87 ft. steel beam bridges, Bedford, Hillsboro Co. Bids Oct. 8. CD 10/14, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Warwick, R. I., CA **$2,243,414**, est. $2,920,818, hy. and bridge Int. Rte. 95. Proj. 1-95-1(5)0-Section 2; Attleboro; CA **$1,075,493** est. $1,461,509, hy. and bridge Int. Rte. 95. Proj. 1-95-1(4) 7 North Attleboro. Bids Aug. 11. CD 8/13, under LB.

BUILDINGS—LB & CA

▲† **Wexler Constr. Co., Inc.**, 118 Needham St., Newton Highlands 61, Mass., LB **$1,118,000**, (14 bidders), alterations to HOSPITAL BLDGS. 5, 6 and RECREATION BLDG. 10, Veterans Administration Hospital, BEDFORD, MASS. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Nov. 17. CD 9/21.

† **James Constr. Co., Inc.**, 14 Boylston Pl., Brookline, Mass., Mass., LB **$775,000**, Proj. BOS-60, air-conditioning, alterations, repairs OFFICE and COURTHOUSE, BOSTON, MASS. General Service Admin., P. Bldgs. Service, 600 Post Office Bldg., Boston, Mass.

D. Guschov Co., 20 Pemberton Square, Boston, Mass., LB **$865,350**, Arthur W. Coolidge JUNIOR HIGH SCHOOL, Birch Meadow Drive and Tennyson Rd., READING, MASS. Town, Supt. Schools, Memorial High School, Birch Meadow Dr., Reading, Mass. Bids Nov. 16. CD 10/21.

Andrew Jabdo, 221 Yankee Div. Hy., Danvers, Mass., Separate Contracts, Approx. **$650,000**, MOTEL, 40 Bridge St., SALEM, MASS.

De Podesta Constr. Co., 121 Hawthorne Ave., Hamden, Conn., Owner Builds, **$878,500**, 29 HOUSES, Evergreen Acres, Evergreen Ave., HAMDEN, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
December 18 New York
STREETS AND ROADS
December 2 Delaware   December 18 New York

▲ **N. Y., New York**—BA 12/16—Dpt. P. Wks., Rm. 2200, Municipal Bldg., Zone 7, Manhattan Bridge imprvs. Contr. No. 10, reconstr. upper deck roadways, repairs to lower deck in connection with conversion of upper roadways to mixed traffic, imprvt. of bridge approach grades and connections to Lower Manhattan Expressway together with related work. Plans deposit $80. CD 10/29.

▲ **New York**—BA 12/17—Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York, Zone 19, furnishing, delivery thereof f.o.b. destination Niagara Falls, Niagara County, 1,530 tons structural steel gates, stop logs and gate transfer car for intakes in Waterways, Spec. No. PA-N-23037, Niagara Contr. No. NP46. Plans $10 per initial set, $5 per set for addnl. sets, not refundable. Uhl, Hall & Rich, 230 Congress St., Boston 10, Mass., engrs. CD 8/15/57.

HEAVY CONSTRUCTION—LB & CA

J. Rich Steers, Inc., 17 Battery Place, New York 4, N. Y., LB **$785,300**, (5 bidders), demolition existing structures, constr. bulkhead, dredging and placing fill for Pier No. 6, Brooklyn-Port Authority Piers, Contr. BP-190.001, BROOKLYN, N. Y. Port of New York Authority, 111 8th Ave., New York 11, N. Y. Bids Nov. 17. CD 10/22.

George Tripp, Inc., 3260 Elizabeth Lake Rd., Pontiac, Mich., CA **$640,572**, sanitary sewers, Gates-Chili-Ogden Sewer District, Section E-1, ROCHESTER, N. Y. Monroe County Sewer Agency, 406 Terminal Bldg., 65 Broad St., Rochester 14, N. Y. Bids Oct. 15. CD 9/29.

NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton,
New Jersey Asphalt & Paving Co., foot of Jersey Ave., Jersey City, N. J., CA **$835,891**, imprv. 6 mi. Tonnele Ave., Rte. US 1 and 9, Hudson and Bergen Counties. Bids Oct. 21. CD 10/23, under LB.

D. Stamato Co., 365 Jefferson St., Saddle Brook, N. J., CA **$668,745**, 51,670 lin. ft., 8- to 12-in. sewer mains, Stage IV, CRESSKILL, N. J. Borough, Borough Hall, Cresskill, N. J. Bids Oct. 7. CD 10/2.

PENNSYLVANIA—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg,
Herbert R. Imbt, Inc., Box 155, State College, Pa. CA **$647,669**, 10,054 ft. divided hy. crushed aggreg. base with bit. surf. variable in width; 1 bridge; cloverleaf T.R. 545 and University Dr., State College Boro; College Twp., Centre Co. Bids Oct. 29. CD 11/4, under LB.

PENNSYLVANIA—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg,
Kimbob, Inc., P. O. Box 127, Harrisburg, Pa. CA **$763,636**, divided hy. c. conc. 3,201 ft. 1 Alt. superstructure bridge, ramps, intersection T. R. 22 and 230 by-pass; Lower Paxton Twp., Dauphin Co. Bids Oct. 28. CD 11/2, under LB.

PENNSYLVANIA—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg,
Putman & Greene, Inc., Box 2082, Station A, Fort Wayne 3, Ind. CA **$654,849**, 22,646 ft. crushed aggreg. base with bit. surf. variable in width, L.R. 17038 (6); 17038 (Spur 1), Lawrence Twp., Clearfield Boro, Clearfield Co. Bids Oct. 30. CD 11/5, under LB.

▲ **James McHugh Constr. Co.**, 6449 South Park Ave., Chicago 37, Ill., CA **$1,039,510**, reconstruction East-Bound Section of Benning Road Viaduct, WASH., D. C. Highway Dpt., 499 Pa. Ave. N. W., Wash., D. C. Bids Oct. 27, CD 10/29, under LB.

BUILDINGS—LB & CA

Regency Homes, c/o Albert B. Meklenburg Organization, 220 East Jericho Turnpike, Mineola, N. Y., Owner Builds, **$850,000**, (addnl. section), 50 HOUSES, Bellmore Ave., BELLMORE, N. Y.

John W. Cowper Co., 1945 Sheridan Rd., Tonawanda, N. Y., CA **$644,290**, NUCLEAR REACTOR, BUFFALO, N. Y. University of Buffalo, 3425 Main St., Buffalo, N. Y. CD 7/1, under LB.

▲ **Mars Assocs. & Normel Constr. Co.**, 271 Church St., New York 13, N. Y., LB **$1,547,000**, (6 bidders), general contract JUNIOR HIGH SCHOOL 52 addn., modernization, Kelly St. and Ave. St. John, Bronx Boro, NEW YORK, N. Y. Supt. Design, Constr. & Physical Plant, at office Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Nov. 17. CD 10/19.

Turturro Homes, c/o Eagle Realty Co., 102-01 Rockaway Blvd., Ozone Park, N. Y., Owner Builds, **$640,000**, 20 HOUSES, Pitkin Ave. and 88th St., OZONE PARK, N. Y.

Rosario Quartaro, Brookside Terrace, Clark, N. J., Owner Builds, **$650,000**, 42 HOUSES, Picton Station section, Clark Twp., CLARK, N. J. Casey & Keller, 1000 Springfield Ave., Irvington, N. J., engrs.

Trade Building Corp., 161 Cedar Lane, Teaneck, N. J., Owner Builds, **$650,000**, 15 HOUSES, west section of East Hill Houses off Knickerbocker Rd., CRESKILL, N. J. Albert Rader, 510 Piermont Rd., Closter, N. J., archt.

Lake Builders Co., Rte. 208, Franklin Lakes, N. J., Owner Builds, **$750,000**, 15 HOUSES, Shadow Lake Estates, Green Ridge Rd., FRANKLIN LAKES, N. J.

▲ **Steiner Gunderson**, 51 Kinderkamack Rd., Westwood, N. J., Owner Builds, **$1,000,000**, 45 HOUSES, Wildwood Ave., NORTHVALE, N. J. Robert Easton, 5 Valley Rd., Closter, N. J., archt.

Harvey J. Milkon, 35-12 Broadway, Fair Lawn, N. J., Owner Builds, **$675,000**, 23 HOUSES, 2nd section, Godwin Ave., WYCKOFF, N. J. Albert Rader, 510 Piermont Rd., Closter, N. J., archt.

▲ **Daniel B. Van Campen**, 2540 D. Oxford St., Phila., Pa., LB **$1,053,337**, general constr. JUNIOR HIGH SCHOOL, Paxon Hollow Rd., BROOMALL, PA. Marple-Newton Joint School Auth., Newton Square, Pa. CD 7/3.

▲ **Pa. Pub. School Bldg. Auth.**, 101 S. 25th St., Harrisburg, Pa., cancelled bids to have opened Dec. 3, SECONDARY SCHOOL addn. for German Twp. School Dist. (Proj. 858-654), MCCLELLANDTOWN, PA. Est. **$1,000,000**. Will re-advertise. CD 11/10.

▲ **Ragnar Benson, Inc.**, 2 Gateway Center, Pittsburgh, Pa., CA Est. **$1,100,000**, LABORATORY and OFFICE, Greentree, PITTSBURGH, PA. Pittsburgh Testing Laboratory, Stevenson and Locust St., Pittsburgh 19, Pa. Bids Oct. 22. CD 10/15.

▲ **C. W. Jackson & Assocs.**, 2526 N. Charles St., Baltimore, Md., CA **$1,407,000**, JUNIOR HIGH SCHOOL, BEL AIR, MD. Bd. Educ. Harford Co., Bel Air, Md. Bids Oct. 20, awarded Nov. 11. CD 10/22, under LB.

▲ **City Housing Auth.**, Cumberland, Md., rejected bids, 80 unit brick, concrete, block HOUSING, CUMBERLAND, MD. LB **$1,108,900**. CD 10/21, under LB.

▲† **Joseph F. Nebel Co.**, 3408 Wisconsin Ave., Wash., D. C., LB Item 1, **$1,573,000** est. $1,853,558; LB Item 2 **$1,505,000** est. $1,729,058, LB Item 3, **$1,368,000** est. $1,425,993, LB Item 4, **$1,321,000** est. $1,372,103, (15 bidders), INDUSTRIAL FACILITIES, Naval Propellant Plant, NBy-21495, INDIAN HEAD, MD. Area Public Wks. Office, Chesapeake, U. S. Naval Weapons Plant, Wash., D. C. Bids Nov. 18. CD 11/16.

Eisen-Magers Constr. Co., Inc., 8618 Cameron St., Silver Spring, Md., CA **$682,000**, (4 bidders), SHOPPING CENTER, Aspen Hill Area, WHEATON, MD. Georgia-Conn Inc., 933 Gist Ave., Silver Spring, Md. Bids Oct. 14. CD 9/29.

▲ **William A. Berbusse, Jr., Inc.**, 101 Park Ave., New York, N. Y., CA **$2,250,000**, 6 story, brick masonry, steel, St. Francis HOSPITAL addn., WILMINGTON, DEL. St. Francis Hospital, 831 Tatnall St., Wilmington, Del. Gleeson & Mulrooney, 1612 Market St., Phila., Pa., archts. Charles H. Wolf, 112 S. 16 St., Phila., Pa., engr. Bids Oct. 8, CD 10/22, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
December 4 Kentucky
STREETS AND ROADS
December 4 Kentucky

BUILDINGS—BA

Ga., Athens—ARTS CENTER—BA 12/17—University System of Georgia Bldg. Auth., 244 Washington St. S. W., Atlanta, 50,500 sq. ft. Visual Arts Unit for Fine Arts Center, $700,000. Plans deposit $50. Toombs, Amisano & Keels, 70 Fairlie St. N. W., Atlanta, archts. CD 3/13/57.

HEAVY CONSTRUCTION—LB & CA

† **Reynolds & Smith, Inc.**, Box 428, Moore Haven, Fla., CA **$786,960**, improv. Canal 41, Sect. 2 (Harney Pond Canal) Central and Southern Florida Flood Control Project CIVENG-09-123-60-11, FLORIDA, U. S. Eng., P. O. Box 4970, Jacksonville 1, Fla., Bids Nov. 3. CD 11/10 under LB.

† **Paul Smith Constr. Co.**, P. O. Box 8066, Orlando, Fla., CA **$997,859** reconstruction Pad 12, Cape Canaveral Missile Test Annex, Patrick Air Force Base, COCOA, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. CD 6/10.

Sullivan, Long & Hagerty, Bldg. Div., 801 5th Ave., Birmingham, Ala., CA **$723,007**, (B) sewage collection sys., (C) pumping station, OCEAN SPRINGS, MISS. Town, Town Hall, Ocean Springs, Miss. Bids Aug. 31. CD 10/1, under LB.

Milam Constr. Co., 8940 1 Ave. N., Birmingham, Ala., LB **$699,327** (9 bidders), collection sewers, W. Huntsville, HUNTSVILLE, ALA. City, City Hall, Huntsville, Ala. Bids Nov. 10. CD 10/27;
C.F.W. Constr. Co., Fayetteville, Tenn., LB **$241,345** (10 bidders), outfall sewer in W. Huntsville (Huntsville, Ala.).

▲ **Whittenberg Engineering & Constr. Co.**, 2214 S. Floyd St., Louisville, Ky., CA **$1,323,000**, Phase 1, Lee Terminal Standiford Field addn., LOUISVILLE, KY. Louisville-Jefferson County Air Bd., Lee Standiford Field, Louisville, Ky. Bids Oct. 14. CD 10/16, under LB.

▲ **R. B. Tyler Co.**, 1446 Levering St., Louisville, Ky., LB **$1,349,336** Combination Bid, Contr. 3 water distr. sys., Contr 4, sewerage sys. imprvs., Contr. 5 sewage treatment plant; LB **$772,339** Contr. 4, sewerage sys. imprvs., PIKEVILLE, KY. City, City Hall, Pikeville, Ky. Bids Nov. 17. CD 11/2.
The Mountain City Co., P. O. Box 4053, Chattanooga, Tenn., LB **$256,338** Contr. 3 water distr. sys. (Pikeville, Ky.),
Don King Constr. Co., Harris St., Jackson, O., LB **$393,463**, Contr. 5, sewage treatment plant (Pikeville, Ky.).

▲† **TENNESSEE**—Tennessee Valley Auth., New Sprankle Bldg., Knoxville. Bids opened 11/10,
Tenn.—**John F. Beasley Constr. Co.**, 20 N. Wacker Dr., Chicago, Ill., LB **$1,329,000**, bridge on Loudon Dam, Loudon, Loudon Co.;
Tenn.—**Oman Constr. Co.**, Ackling Park, Nashville, Tenn., LB **$648,164**, bridge approaches, Loudon, Loudon Co. CD 10/16

▲ **TENNESSEE**—State Hy. Dpt., Nashville,
Tenn.—**M. C. West**, Columbia, Tenn., CA **$661,236**, grade, drainage, 2 sets twin concrete deck girder bridges, paving with bit. materials (plant mix) etc. 2.81 mi. State Rte. No. 2 Loope (Cleveland By-Pass) Proj. F-002-3 (27), Bradley Co.;
Tenn.—**Summers-Taylor Paving Co.**, Johnson City, Tenn., CA **$1,269,092**, widen with crushed stone and bit. materials (plant mix) 2 lane roadway to 4 lane divided hy. 2.613 mi. Proj. U-034-1 (27) and grade, drainage, paving with crushed stone, bit. materials (plant mix) 2 addnl. lanes, widen, resurf. with plant mix of exist. 2 lanes for future 4 lane divided hy. 5.654 mi. State Rte. No. 34, Proj. F-034-1 (26), Jefferson and Hamblen Counties;
Tenn.—**Ruth Constr. Co.**, New Market, Tenn., CA **$3,159,462**, paving Interstate with c. conc. and crossroads with bit. materials (plant mix) 8 bridges (5 sets twin concrete deck girders, 1 single concrete deck with steel beams and 2 concrete box types) 3.373 mi. Int. Rte. No. 40, Proj. I-40-7 (15) 382, Knox Co.;
Tenn.—**Associated Contractors & Engineers**, W. Alley St., Jackson, Tenn., CA **$1,927,851**, surf. with bank or creek gravel or chert and bit. materials, 4 sets dual concrete deck girder bridges 8.615 mi. 4 lane divided section State Rte. No. 3 (U.S. Rte. 51), Proj. F-003-3 (6), Lauderdale and Dyer Counties;
Tenn.—**Tillett Bros. Constr. Co., Inc.**, Shelbyville, Tenn., CA **$1,035,985**, grade, drainage, 7 bridges 5.893 mi. Int. Rte. No. 40, Proj. I-40-6(10) 280, Putnam Co.;
Tenn.—**J B. Michael Co.**, 1021 Heywood St., Memphis, Tenn., CA **$3,536,866**, grade, c. conc. paving, 6 bridges (3 sets dual steel girder and concrete deck, 1 set dual concrete box girder bridges, 1 single concrete deck girder bridge widening 1 single concrete deck

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girder) Int. Rte. No. 55, Proj. I-55-1 (7) & Shelby Co.;

Tenn.—**S&W Constr. Co., Inc.**, 2630 Midland Ave., Memphis, Tenn., CA **$2,596,235**, grade, drainage, 7 bridges (2 sets dual structures, 5 single structures 2.328 mi. Int. Rte. No. 240 (S.E. Circumferential around Memphis), Proj. I-240-1 (13) 230, Shelby Co. Grand total $14,186,727. Bids Oct. 30. CD 11/5, under LB.

BUILDINGS—LB & CA

H. A. Lott, Inc., P. O. Box 25005, Houston, Tex., CA **$866,000**, 100 unit HOUSING Projects GA 160-1 and 1620-2, WARNER ROBINS, GA. Warner Robins Housing Auth., Warner Robins, Ga. CD 11/10, under LB.

▲ **Paul Smith Constr. Co.**, 310 N. Rome Ave., Tampa, Fla., CA **$1,000,000**, 120,000 sq. ft. lithographing and shearing operations PLANT extension, 1601 39 St., TAMPA, FLA. Continental Can Co., 1601 39 St., Tampa, Fla.

Southeastern Constr. Co., 1st National Bank Bldg., Jackson, Miss., CA **$688,796**, general contract, 1 story, 95,659 sq. ft. Natchez-Adams County HIGH SCHOOL, NATCHEZ, MISS. Trustees Natchez Special Municipal School Dist., 108 S. Commerce St., Natchez, Miss. Bids Oct. 23. CD 10/16.

Milton J. Womack, Box 2454, Baton Rouge, La., LB **$702,500**, (8 bidders), 2 story, steel frame, brick PLEASANT HALL addn., remodeling, BATON ROUGE, LA. Louisiana State University & Agricultural & Mechanical College, Baton Rouge, La. Bids Nov. 13. Bids Oct. 22 rejected, LB **$636,000**. CD 10/30, under LB.

▲ **H. E. Wiese, Inc.**, 2155 Sorrel Ave., Baton Rouge, La., CA Est. **$2,000,000**, AIR SEPARATION PLANT, BATON ROUGE, LA. Air Reduction Sales Co., Div. Air Reduction Co., 150 E. 42nd St., New York 17, N. Y.

Marion Co. Bd. Educ., Lebanon, Ky., rejected bids Oct. 8, COUNTY HIGH SCHOOL, LEBANON, KY. LB **$705,000**. CD 10/15, under LB.

▲ **Foster Creighton Co.**, 724 1st American National Bank, Nashville 3, Tenn., LB **$2,254,000** (9 bidders), 7 story, 65,000 sq. ft. DENTAL SCHOOL, University of Kentucky, LEXINGTON, KY. Commonwealth of Ky., Div. Purchases, Frankfort, Ky. Bids Nov. 17. CD 10/13.

Louisville Methodist Conference, 1115 S. 4th St., Louisville, Ky., rejected bids Wesleyan Manor RETIRED PERSONS HOME, Manslick Rd., near LOUISVILLE, KY. Project abandoned. LB **$750,000**. CD 8/26, under LB.

▲ **Sullivan & Cozart**, 822 W. Kentucky St., Louisville, Ky., CA Over **$1,500,000**, 12 story APARTMENT-HOTEL and Brown Suburban HOTEL addn., Bardstown Rd. near Goldsmith Lane, LOUISVILLE, KY. J. Graham Brown, Brown Hotel, Louisville 2, Ky. CD 10/8.

▲ **Whittenberg Constr. & Eng. Co.**, 2214 S. Floyd St., Louisville 17, Ky., CA Est. **$2,000,000**, 12 story APARTMENT, first 2 floors CHURCH and RELIGIOUS OFFICE, LOUISVILLE, KY. Trinity Methodist Church, 3rd and Guthrie, Louisville 2, Ky. E. J. Schickli, Jr., 310 W. Liberty, Louisville 2, Ky., archt.

▲ **Al J. Schneider Co., 7th St. Rd., Louisville, Ky.**, CA **$1,159,500**, County HIGH SCHOOL, SHELBYVILLE, KY. Shelby County Bd. Educ., Shelbyville, Ky. Bids Oct. 13. CD 10/16, under LB.

▲† **High Voltage Engineering Corp.**, S. Bedford St., Burlington, Mass., CA **$3,300,000**, three, twelve million electron volt Van de Graaf TANDEM POSITIVE ION ACCELERATORS at Oak Ridge National Laboratory, OAK RIDGE, TENN. Atomic Energy Comm., P.O. Box E, Oak Ridge, Tenn. Awarded Nov. 13. CD 7/30.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
December 9 Michigan

STREETS AND ROADS
December 9 Michigan

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—Dpt. Hys., State Depts. Bldg., Columbus, Bids opened 11/10,

O.—**C. F. Repogle Co.**, P. O. Box 308, Circleville, O. LB **$3,620,828**, est. $4,315,200 (8 bidders), Type T-35 on B-20 and structures 2.146 mi. SR 13.53, U-430(14) (Village of Mingo Junction and City of Steubenville) Proj. 517, Jefferson Co.;

O.—**John F. Casey Co.**, P. O. Box 1888, Pittsburgh, Pa. LB **$1,490,138**, est. $1,934,000 (9 bidders) Type T-71 and structures 0.561 mi. SR 640-2.56, U-UG-1090(1) (City of Willoughby) Proj. 518, Lake Co. CD 10/20.

BUILDINGS—LB & CA

Paugh & Brown, 6007 Euclid Ave., Cleveland 3, O., CA **$964,088**, (9 bidders), general contract FORD JUNIOR HIGH SCHOOL, BEREA, O. Bd. Educ., 390 Fair St., Berea, O. Bids Nov. 5, awarded Nov. 9. CD 10/12.

Gerbus Constr. Co., 2461 N. Bend Rd., Cincinnati, O., Own Forces, **$675,000**, forty-two, 1 story, bsmnt., brick HOUSES, Roebling Rd., CINCINNATI, O. James Allen, 5555 Glenway Ave., Cincinnati, O., engr.

▲ **Lathrop Co.**, 1510 Montcalm, Toledo, O., CA Total est. **$1,750,000**, 8 story, 60 x 110 ft. rein.-con OFFICE, corner Madison Ave. and Erie St., TOLEDO

O. Toledo Home Federal Savings & Loan Co., 902 Broadway, Toledo, O.

Eugene S. Babilla, Inc., 578 Broadway Ave., Gary, Ind. CA **$890,488,** Norton Park ELEMENTARY SCHOOL, GARY, IND. School City of Gary, 10 Place and Virginia Ave., Gary, Ind. Bids Oct. 13. CD 10/26, under LB.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 1 Iowa **December 15 Texas**

STREETS AND ROADS

December 1 Iowa **December 15, 16 Texas**
December 17 Missouri

▲† **Wyo., Cheyenne**—HEADQUARTERS WING—BA 12/4—U. S. Eng., 1709 Jackson St., Omaha, Neb., headquarters wing (rehabilitation) Bldg. 1200, Francis E. Warren Air Force Base, ENG-25-066-60-58. $1,500,000-$2,000,000. CD 9/28.

BUILDINGS—BA

Mo., St. Joseph—SCHOOL—BA 12/9—Bd. Educ., 10th and Felix, 1 and 2 story Central High School addn. $700,000-$800,000. Eckel & Aldrick, Corby Bldg., archts. CD 10/26.

Tex., Fort Worth—LABORATORY, etc.—BA 12/16—Alcon Laboratories, Inc., 1400 Henderson St., 1 story, 34,000 sq. ft. laboratory, production and boiler rooms. $800,000. John W. Floore, 1401 W. Lancaster St., Fort Worth, archt. CD 1/28.

▲ **Kan., Russell**—SCHOOL—BA 12/17—Rural High School Dist. No. 7, high school. $1,500,000. Plans deposit $75. Edw. M. Fuller, 701 E. 14th Ave., North Kansas City, Mo., archt. CD 12/8/58.

HEAVY CONSTRUCTION—LB & CA

MINNESOTA—State Hy. Dpt., Capitol Approach, St. Paul, Bids opened 11/13,
S. J. Groves & Sons Co., Wesley Temple Bldg., Minneapolis, Minn., LB **$967,976,** (5 bidders), grade, base, road-mixed, bit. base and bridges 1.4 mi. near Eveleth, St. Louis Co. CD 10/28.

Platte Valley Constr. Co., 900 S. Adams St., Grand Island, Neb., CA **$744,089,** Judicial Ditch No. 19, Part I, floodways, Swift Co., BENSON, MINN. Swift Co., Benson, Minn. Bids Sept. 23. CD 10/7, under LB.

TEXAS—State Hy. Comn., Austin, Bids opened 11/13,
J. A. Raines, Contractor, Box 936, Muskogee, Okla. LB **$872,938,** Neches River Bridge and approaches 2.599 mi. Hy. U. S. 96. Proj. F 354 (8), Japper and Hardin Counties. CD 11/2.

▲ **TEXAS**—State Hy. Comn., Austin, Bids opened 11/12,
Tex.—J. M. Dellinger, Box 4227, Corpus Christi, Tex. LB **$154,659,** base, surf. 8.266 mi. Hy. FM 666, Proj. R 2415-101, Nueces Co., LB **$533,256,** flex. base, b. conc. 11.463 mi. Hy. U. S. 83. Proj. F 793 (2), Dimmit Co.;
Tex.—Gilvin-Terrill, Inc., Box 9027, Amarillo, Tex., LB **$598,960,** flex. base, hot mix b. conc. 2.004 mi. Hy. U. S. 60 and 87 Proj. U 60 (18), Randall Co.;
Tex.—Thos. J. Evans, Jr. & M. M. Pettyjohn, Box 478, South Houston, Tex., LB **$761,494,** grade, structures 1.895 mi. U. S. 59, Proj. F 514 (32), Harris Co. CD 11/12.

▲ **TEXAS**—State Hy. Comn., Austin, Bids opened 11/13,
Tex.—Gilvin-Terrill, Inc., 413 E. 3rd St., Amarillo, Tex., LB **$529,765,** base, b. conc. 5.999 mi. Hy. U.S. 60, Proj. R RD 17 (1), Potter Co.;
Tex.—Trotti & Thompson, Inc., 390 S. 4th St., Beaumont, Tex., LB **$662,829,** flex. base, b. conc. 1.774 mi. Hy. Spur 215, Proj. U 1052 (J 3), Jefferson Co.;
Tex.—Flenniken Constr. Co., Inc., 2530 Fairmont St., Dallas, Tex., LB **$817,798,** flex. base, b. conc. 3.955 mi. Hy. U.S. 287, Proj. F 451 (7), Wilbarger Co.;
Tex.—Jno. F. Buckner & Sons & Uvalde Constr. Co., Cleburne, Tex., LB **$763,241,** base, c. conc. 4.731 mi. Hy. U.S. 175, Proj. F 860 (12), Dallas Co. CD 11/2.

▲† **H. A. Lott, Inc.,** P. O. Box 809, Los Alamos, N. M., CA **$1,859,249,** Phermix Facility, TA-15, Inv. No. 291-60-1, LOS ALAMOS, N. M., Atomic Energy Comm., Los Alamos, N. M. Bids Oct. 6. CD 10/16, under LB.

BUILDINGS—LB & CA

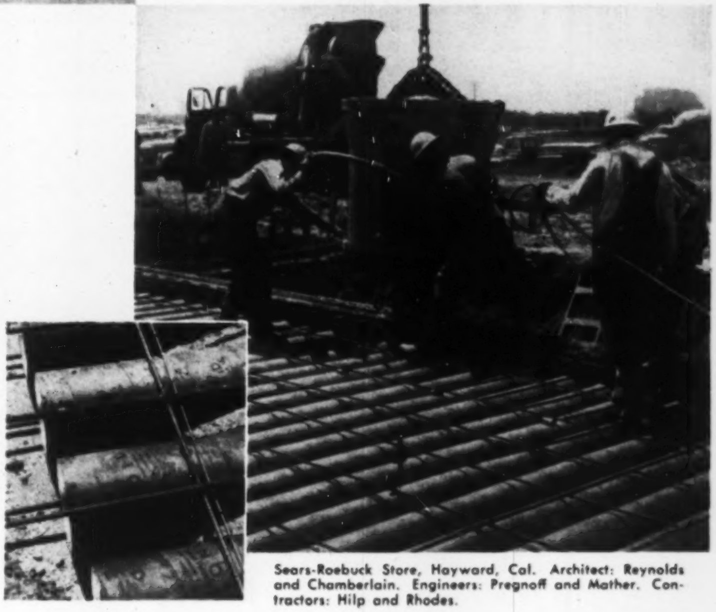
▲ **Priester Constr. Co.,** 601 Brady St., Davenport, Iowa, CA **$1,500,000,** 170 unit MOTEL, Brady and Kimberly Rds., DAVENPORT, IOWA. 4000 Brady, Inc., 314 E. Kimberly St., Davenport, Iowa. Awarded Oct 19

▲ **The Weitz Co.,** 406 Fleming Bldg., Des Moines, Iowa, CA Est. **$1,200,000,** FINE ARTS CENTER, incl. 2 story, bsmnt., concrete, brick art-music bldg. and theatre, GRINNELL, IOWA. Grinnell College, Grinnell, Iowa. CD 12/2/57.

▲ **Holtze Constr. Co.,** 2121 4 St., Sioux City, Iowa, CA Est. **$4,000,000,** SUPERMARKET, DPT. STORE, HOTEL, etc., and parking areas, between Pierce, Jackson and 2nd Sts. and Gordon Dr., SIOUX CITY, IOWA, Auditorium Shopping, Inc., c/o Mark Krueger, 314 Francis Bldg., Sioux City, Iowa. Sidney Morris, 134 N. LaSalle St., Chicago, Ill., archt. CD 5/8.

Lysne Constr. Co., Blooming Prairie, Minn., CA **$804,400,** 4 story COMMUNITY HOTEL-MOTEL, AUSTIN, MINN. Austin Community Hotel-Motel, Austin, Minn. Bids Sept. 30. CD 10/22, under LB.

Cast lighter-weight concrete slabs... economically!



Sears-Roebuck Store, Hayward, Cal. Architect: Reynolds and Chamberlain. Engineers: Pregnoff and Mather. Contractors: Hilp and Rhodes.

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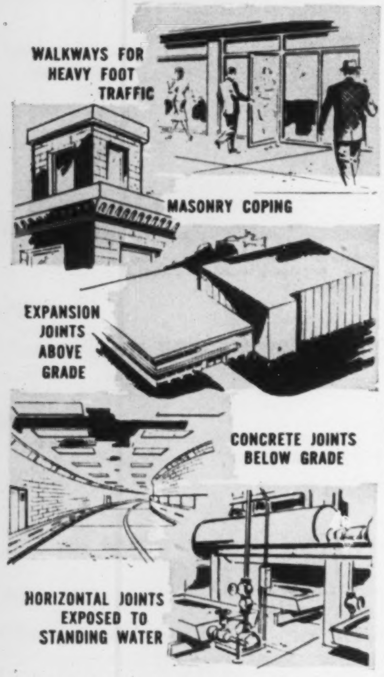
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▲ **R. K. & A. Jones, Inc.**, 530 Lindbergh Blvd., Box 297, Florissant, Mo., CA Est. **$2,000,000**, 1 and 2 story, 36,000 sq. ft. Florissant Meadows SHOPPING CENTER and 500 car parking area, Jct. US 40 with Old US 40 and Hy. 61, WENTZVILLE, MO. Bud Wilke, St. Charles, Mo., and c/o 6145 Natural Bridge Ave., St. Louis 20, Mo. Marcel Boulicault, Inc., 411 N. 7th St., St. Louis 1, Mo., archt.

Southern Builders, Inc., 3355 Poplar Ave., Memphis, Tenn., CA Est. **$700,000**, 6 story, plate glass exterior, aluminum louvers east and west sides, OFFICE, air-conditioning, law library, etc., 7 and Bishop Sts., LITTLE ROCK, ARK. Capitol Building Investment Corp., c/o Wittenberg, Delony & Davidson, archts., 510 Center St., Little Rock, Ark. CD 1/5.

▲ **Arkansas Grain Corp.**, Stuttgart, Ark., Own Forces, **$1,500,000**, 800 tons per-day capacity SOYBEAN OIL EXTRACTION PLANT, STUTTGART, ARK. French Oil Mill Machinery Co., Piqua, Ohio, engr. CD 8/14.

Sioux Falls Constr. Co., 800 S. 7th St., Sioux Falls, S. D., CA **$989,400**, general constr. O'Gorman Catholic HIGH SCHOOL, 37th St. and Kiwanis Ave., SIOUX FALLS, S. D. Catholic Diocese of Sioux Falls, 423 N. Duluth St., Sioux Falls, S. D. Awarded Nov. 4.

McLean Constr. Co., 1846 E. Sunshine, Springfield Mo., CA Est. **$900,000**, (first unit), 1 story, 82,000 sq. ft. West Way Regional SHOPPING CENTER and PARKING, WICHITA, KAN. West Way, Inc., c/o Irving Schwab, Holland Bldg., Springfield, Mo. A. C. Esterly, McDaniel Bldg., Springfield, Mo., archt. CD 6/3.

▲ **E. A. Cowen**, 214 N. Broadway, Shawnee, Okla., CA **$1,129,000**, JUNIOR HIGH SCHOOL and GYMNASIUM, PONCA CITY, OKLA. Bd. Educ., Ponca City, Okla. Bids Sept. 21. CD 10/7, under LB.

W. S. Bellows Constr. Corp., Box 2132, Houston, Tex., CA **$875,000**, 6 story, 200,000 sq. ft., rein.-con. frame, brick PARKING GARAGE, HOUSTON, TEX. Plaza Realty Co., 1100 Lamar Ave., Houston, Tex. Wilson, Morris, Crain & Anderson, 3330 Graustark St., Houston, Tex., archts. Rob. J. Cummins, 1028 Bankers Mtg. Bldg., Houston, Tex., engr.

▲ **Carney Constr. Co.**, Box 603, Greeley, Colo., CA **$1,006,139**, est. $600,000, 3 story, bsmnt., 69 x 238 ft. HOSPITAL addns., alterations, FORT COLLINS, COLO. Larimer County Hospital Assocs., Fort Collins, Colo. Bids Oct. 15, awarded Nov. 13. CD 10/21, under LB.

▲ **Lembke Constr. Co.**, Box 771, Colorado Springs, Colo., CA **$790,000**, 1 story central facility, one two story and one 3 story 30,000 sq. ft. DORMITORY, TRINIDAD, COLO. Trinidad Junior College, Campus, Trinidad, Colo. Bids Oct. 27, awarded Nov 13. CD 11/4, under LB.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

December 8 Washington
December 16 California

STREETS AND ROADS

December 4 Arizona
December 16 California

HEAVY CONSTRUCTION—LB & CA

IDAHO—State Hy. Dpt., Boise,
Duffy Reed Constr. Co., Twin Falls, Idaho, LB **$697,768**, constr. roadway, drainage structures, plantmix bit. surf. and 27 ft. concrete bridge and connecting roads on 1.624 mi. U.S. No. 30, and grading roadbed and constr. 145 ft. bridge on 2.137 mi. access road, Jerome and Twin Falls Counties. Bids Nov. 10.

▲ **Morrison-Knudsen Co., Inc.**, 319 Broadway Ave., Boise, Idaho, CA **$4,734,656**, est. $4,042,470, gravity sewerage sys., BOISE, IDAHO. Bench Sewer Dist. of Ada Co. 407 N. Orchard St., Boise, Idaho. Bids Aug. 13, awarded Nov. 10. CD 8/19, under LB.

† **Gunther & Shirley & E. E. Lane Corp.**, 4560 Sherman Oaks Ave., Sherman Oaks, Calif., LB **$767,976** (14 bidders), Boulder Canyon Proj., DC 5240, Boulder City, ARIZONA and NEVADA. Bureau Reclamation, Dpt. Interior, Boulder City, Nev. Bids Nov. 17. CD 10/5.

▲† **MacDonald, Scott & Assocs.** (Morrison-Knudsen Co., Inc., C. H. Leavell, Paul Hardeman, Inc., and F. E. Young), 1310 S. Grand Ave., St. Louis, Mo., LB **$31,660,722**, est. $32,521,415 (8 bidders), titan base, Larson Air Force Base, ENG-45-164-60-2, MOSES LAKE, WASH. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Nov. 18. CD 11/15.

Cascade Center, c/o J. Peterson, 5500 Coniston Rd., Seattle, Wash., Day Labor, **$900,000**, 32-acre SHOPPING CENTER, 116 Ave. S.E. and S.E. 16 St., RENTON, WASH. G. Heideman, 527 Fairview Ave. N., Seattle, Wash., archt. CD 3/31.

James E. Roberts Co., 980-41st St., Oakland 8, Calif., LB **$769,500**, ninety 1 story wood frame, stucco dwelling units low rent HOUSING, North Richmond, MARTINEZ, CALIF. Contra Costa Co. Housing Auth., 700 D St., Martinez, Calif. Confer & Willis, 366-40th St., Oakland, Calif., archts.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, Bids opened 11/13,
Ukropina, Polich & Kral and Ukropina, P.O. Box 105, San Gabriel, Calif., LB **$3,478,202** (10 bidders), 2 mi. 8-lane freeway Golden State Freeway (U.S. 6-99) between 0.2 mi. S.E. of Roscoe Blvd. and 0.2 mi. N.W. of Lankershim Blvd., VII-L.A.-4-L.A., Los Angeles Co CD 10/8.

(Continued on page 90)

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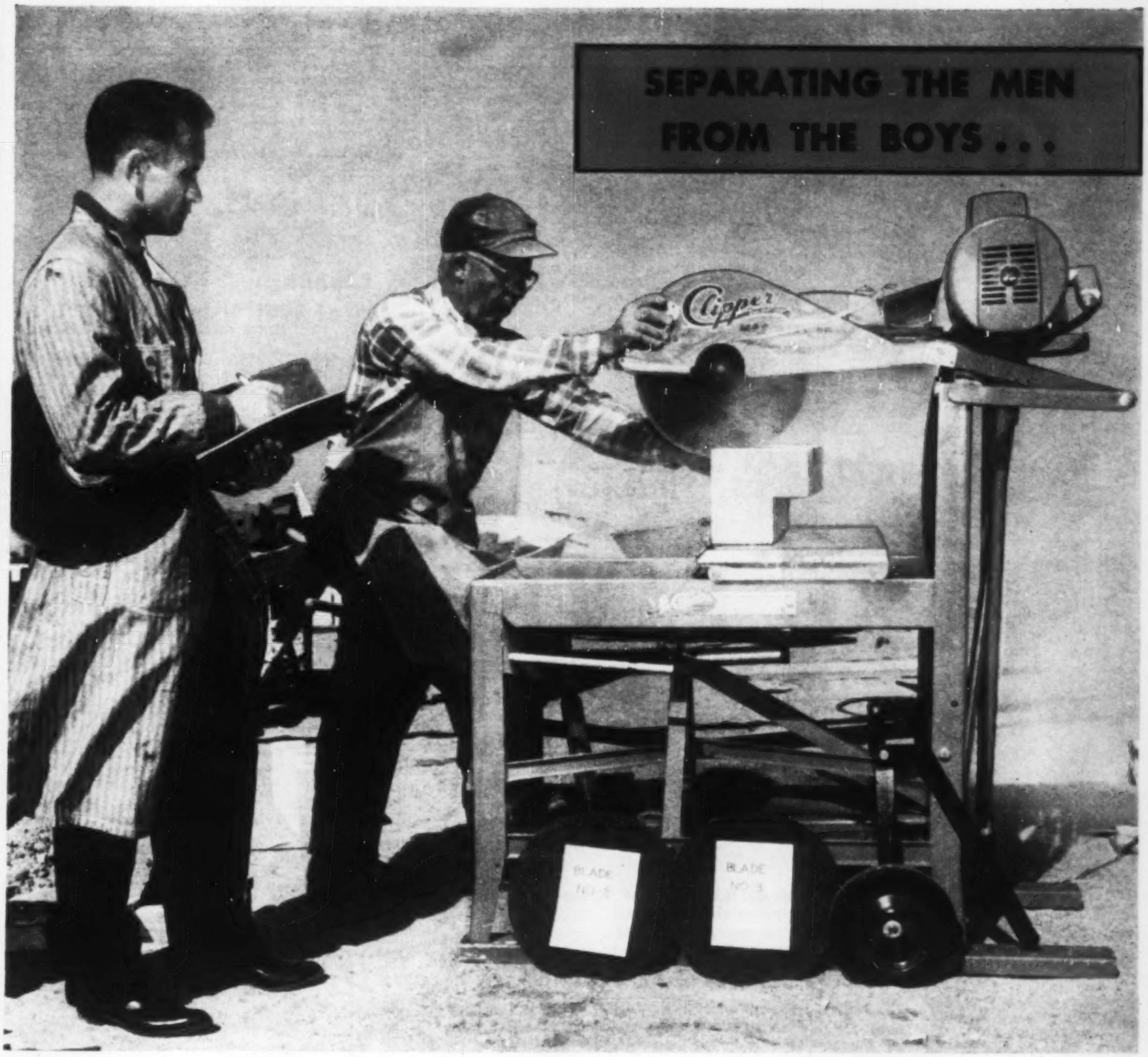
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(Continued from page 88)

BUILDINGS—LB & CA

▲† **Lemke Constr. Co., Inc.**, 1719 5 St. N.W., Albuquerque, N. M., LB **$3,079,459**, Base Bid Proposal 3, Chinle SCHOOL expansion, Proj. No. Bu-369, Spec. No. 40-59, CHINLE, ARIZ. Bureau Indian Affairs, Branch of Plant Design & Constr., Box 1777, Albuquerque, N. M. Bids Nov. 12.

James I. Barnes Constr. Co., Central Bldg., Seattle, Wash., CA **$716,460**, 6 bldgs. totaling 79,700 sq. ft., rein.-con., masonry and frame JUNIOR HIGH SCHOOL, KENMORE, WASH. Northshore School Dist. No. 417, Bothell, Wash. Bids Oct. 9. CD 9/22.

▲ **United Bldg. Co. of Tacoma**, Century Bldg., Rte. 5, Tacoma, Wash., CA Est. **$3,500,000**, 22 HOUSES, Benson Hy., KENT, WASH. Capital Constr. Co., Fife Square, Tacoma, Wash. Donald F. Burr & Assoc., Lakewood Center, Tacoma, archts. CD 3/27.

▲ **Dorsey's, Inc.**, Northern Life Tower, Seattle 1, Wash., Day Labor, **$1,600,000**, 8 frame APARTMENTS, 4800 block on 25 Ave. N.E., SEATTLE, WASH. McCool, Morgan & Assocs., 110 Eastlake Ave., Seattle, Wash., archts.

Carter Co., 2975 Wilshire Blvd., Los Angeles 5, Calif., Owner Builds, **$700,000**, 5 story, 71 x 153 ft. concrete OFFICE, 500 S. Virgil Ave., LOS ANGELES, CALIF. Allison & Rible, 3670 Wilshire Blvd., Los Angeles, Calif., archts. Rapp & Rapp, 2405 W. 3rd St., Los Angeles, Calif., engrs.

L. E. Dixon Co., 409 S. California St., San Gabriel, Calif., CA **$914,800** (16 bidders), INSTRUCTION AID and SERVICE FACILITIES, 450 N. Grand Ave., LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Nov. 6. CD 10/30.

▲ **Stanton-Reed Co.**, 720 S. Palm Ave., Alhambra, Calif., CA **$3,113,000**, CLASSROOM, CAFETERIA and MEN'S GYMNASIUM, Los Angeles Valley College, 13161 Burbank Blvd., Van Nuys, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Oct. 16, awarded Nov. 12. CD 10/21, under LB.

R. A. Watt, 7862 S. Western Ave., Los Angeles, Calif., Owner Builds, **$760,100**, sixty-two 1,309 sq. ft. stucco DWELLINGS, Sanchez St., Track 20861, MONTEBELLO, CALIF.

▲ **M. H. Golden**, 3485 Noell St., San Diego, Calif., CA **$1,582,500**, 268,000 sq. ft. concrete WAREHOUSE; CA **$272,700**, 21,000 sq. ft. PLANT OFFICE; CA **$114,300**, 9,000 sq. ft. concrete PLANT, all at 1000 W. 24th St., NATIONAL CITY, CALIF. Safeway Stores Inc., 4th and Jackson Sts., Oakland, Calif. Grand total $1,969,500.

Charles C. Richardson, 4368 Moraga Ave., San Diego, Calif., LB **$892,000** (6 bidders), 2 story, frame, stucco, masonry Half Moon Inn, Buron St. and Yacht Harbor Dr., SAN DIEGO, CALIF. Half Moon Corp., c/o Percy Goodwin Co., First National Bank Bldg., San Diego, Calif. Hiram Hudson, Bendie & Assocs., 4318 Voltaire, San Diego, Calif., archts. Bids Oct. 29.

▲ **B. L. Metcalf**, 1460 N. Glassel, Orange, Calif., CA Est. **$3,000,000**, Kaiser HOSPITAL, San Fernando Valley, SANTA CLARA, CALIF. Kaiser Foundation Hospitals, 368 42nd St., Oakland, Calif. CD 8/18.

▲ **Conejo Valley Development Co.**, Box 707, Thousand Oaks, Calif., Owner Builds, **$1,089,000**, 102. stucco DWELLINGS, Calle Quebracho, Graciosa, Cataljea, Tract 1158, THOUSAND OAKS, CALIF.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
December 9 Ontario

STREETS AND ROADS
December 16 Ontario

BUILDINGS—BA

▲ **N. S., Halifax**—HOSPITAL—BA 12/9—Sisters of Charity, Mount St. Stephen, 3 story hospital wing, 5 story outpatients dept., Halifax Infirmary, $5,000,000. Franco Consiglio, 1201 Guy St., Montreal, Que., archt. Brouillet & Carmel, 3600 Barclay Ave., Montreal, Que., engrs. CD 3/14/58.

▲ **Ont., London**—HOSPITAL—BA 1/13—Dpt. P. Wks. Hunter Bldg., Ottawa, 1, 3, 6 and 7 story sections, rein.-con., brick 300-bed hospital, tunnel to dining room, $4,000,000. Plans deposit $500. Blackwell & Hagerty, 310 Princess Ave., archts. CD 11/29/57.

BUILDINGS—SLC

▲ **Ont., Ottawa**—OFFICE—Shenkman Properties, Ltd., 77 Metcalfe, soon lets contract, 10 story office, 2 bsmnt. garage parking, air-conditioned, Metcalfe and Albert Sts. $1,300,000. Samuel Gitterman & Assocs., 230 Metcalfe, archts.

HEAVY CONSTRUCTION—LB & CA

▲ **McNamara Marine Ltd.**, 57 Industrial St., Leaside, Ont. LB **$547,823**, (8 bidders), entrance wall extension, guard gate, Welland Ship Canal, Western Dist., Welland; LB **$543,180** (11 bidders), entrance wall extensions, Lock 2, Welland Ship Canal, Western Dist., ONTARIO, The St. Lawrence Seaway Authority, Rm. 1225, No. 2 Temporary Bldg., Wellington St., Ottawa, Ont.;
Carter Constr. Co. Ltd., 419 Cherry St., Toronto, Ont., LB **$297,746**, (13 bidders), upper entrance wall extension, Lock 1, Welland Ship Canal Western Dist., Welland (Ontario);
C. A. Pitts, General Contractor Ltd., 30 Commercial Rd., Leaside, Ont., LB **$737,466** (10 bidders), entrance wall extensions Lock 3, Welland Ship Canal Western Dist., Welland (Ontario).

BUILDINGS—LB & CA

▲ **Dominion Constr. Co. Ltd.**, 195 W. 2nd St., Vancouver, B. C., CA **$2,000,000**, concrete slab, structural steel 144,000 sq. ft. REPAIR SHOP and WAREHOUSE, 21,000 sq. ft. OFFICE, 6,100 sq. ft. CAFE and CLASSROOMS, 29,000 sq. ft. roofed STORAGE, BURNABY, B. C. British Columbia Telephone Co., 700 Seymour St., Vancouver, B. C. CD 2/12, under B. C., Vancouver.

Bird Constr. Co. Ltd., Sargent and Erin Sts., Fort Garry, Man., LB **$910,900** (9 bidders), ARTS BUILDING, FORT GARRY, MAN. University of Manitoba, 208 Administration Bldg., Fort Garry, Man. Bids Oct. 27. CD 10/19.

Commonwealth Constr. Co., 300 Royal Bank Bldg., Winnipeg, Man., CA **$905,058**, ARTS BLDG., FORT GARRY, MAN. University of Manitoba, 208 Administration Bldg., Fort Garry, Man. Bids Oct. 27, awarded Nov. 13. CD 11/16, under LB.

Hill-Clark-Francis Ltd., 10 Eglinton Ave. E., Toronto, Ont., Owner Builds, **$750,000**, SHOPPING CENTRE, Streetsville, TORONTO, ONT. Embacher, Kulynich & Lasko, Town Planning Consultants, Toronto, Ont., archts.-engrs.

▲ **Smith Bros. & Wilson Ltd.**, 2135 6th, Regina, Sask., CA Est. **$1,250,000**, MEDICAL ARTS, SASKATOON, SASK. Saskatoon Medical Arts Co., c/o Wester, Forrester & Scott, archts., 209-213 CPR Bldg., Saskatoon, Sask. Bids Oct. 28, awarded Nov. 9. CD 10/26.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ **Argentina, Corl. Pringles**—BA 12/14—Direccion de Vialidad de la Provincia de Buenos Aires, Calle 7, nr. 1175, La Plata, basic works and paving for country hy. $1,100,000.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

† **Five Boro Constr. Corp.**, 2 Lafayette St., New York, N. Y. LB **$672,979**, water sys. imprvs., Naval Base, NBy 17939, Spec. 17939/59, GUANTANAMO, CUBA. Area P. Wks. Office, Caribbean, Naval Station, San Juan, Puerto Rico. Bids Oct. 29. CD 10/6.

(Proposal Advertisements see pp. 99 to 101)

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FIVE IN ONE

FIREBALL

Other Miller welders in this series include:

DA-300-L BIG RIG
Four-in-One:
AC arc welder; DC arc welder; 10 KW AC power plant; 1 KW DC while welding

D-250-L ROUSTABOUT
Three-in-One:
DC arc welder; 10 KW AC power plant; 1 KW DC while welding

D-250-W ROUGHNECK
Two-in-One:
DC arc welder; 1 KW DC while welding

Here's what makes this Miller model the "Five-in-One":

1. AC welder for metallic arc welding
2. DC welder for metallic arc welding
3. AC or DC welder for TIG welding
4. A 10 KW, 115/230v single phase 60 cycle power plant
5. 1 KW of DC while welding

The DAH-350-L Fireball, driven by Hercules 32 hp engine, is another Miller FIRST, offers both a-c and d-c for metallic arc or TIG welding with three separate a-c and d-c amperage ranges for each.

There's continuous high frequency for a-c TIG welding with choice of "start only" or constant high frequency for d-c TIG work.

Standard equipment includes built-in high frequency stabilizer, polarity switch, power supply for water coolant system, and automatic inert gas control panel with solenoid valve and post flow timer. Trailers are available for welder only or for welder with coolant system and gas cylinders.

SPECIFICATIONS

WELDING RANGE	Metallic Arc	Tungsten Arc
	35-100 Amps AC	35- 75 Amps AC
	65-160 Amps AC	65-160 Amps AC
	110-400 Amps AC	150-375 Amps AC
	35- 80 Amps DC	35-100 Amps DC
	75-175 Amps DC	85-225 Amps DC
	125-350 Amps DC	170-375 Amps DC

RATED OUTPUT ..... 250 Amps Tungsten Arc, 100% Duty Cycle DC
300 Amps Tungsten Arc, 100% Duty Cycle AC
CURRENT ADJUSTMENT STEPS .... Infinite
MAXIMUM O.C.V. .... 72 Volts DC
80 Volts AC
1 KW DC AUXILIARY POWER .... 115 Volts
AC GENERATOR OUTPUT .... 10 KW
OUTPUT VOLTAGE .... 115/230 Volt, 1 Phase, 60 Cycle

Complete specifications on these welders will be sent promptly upon request.

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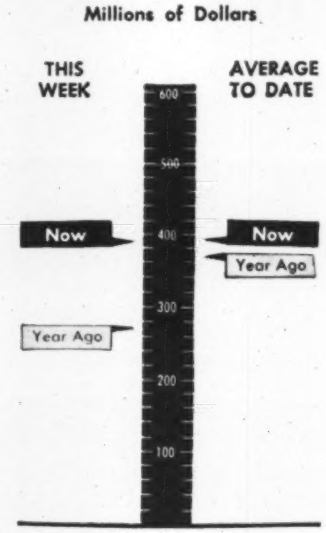
Construction Scoreboard

CONTRACTS ...



AMOUNT OF CONTRACTS LET

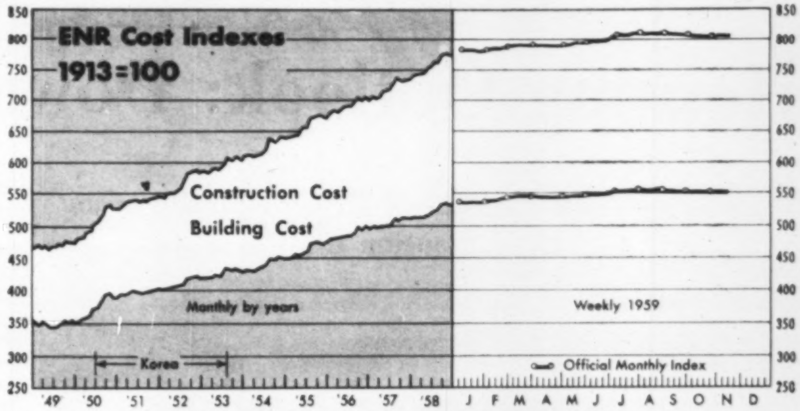
	This Week	Cum. 48 wks 1959	Chge '58-'59
	millions		%
All Heavy Constr.	$389.8	$18,815.0	+ 6
By Ownership			
PRIVATE	187.8	9,518.8	+33
PUBLIC	202.0	9,296.2	−13
State & Municipal	160.8	6,778.2	−15
Federal	41.2	2,518.0	− 6
By Type of Work			
PUBLIC			
Waterworks	4.2	356.6	+26
Sewerage	19.0	606.6	+ 8
Bridges*	10.0	655.4	− 1
Highways	70.4	2,700.3	−21
Earthworks, Dams & Waterways	25.7	823.3	−17
Buildings:			
Excl. Housing	38.5	2,391.1	− 2
Housing	2.2	556.4	−45
Unclassified	32.3	1,217.5	− 5
PRIVATE			
Buildings:			
Mass Housing	96.1	4,301.7	+25
Commercial	40.9	1,985.0	+17
Industrial	47.2	2,761.6	+69
Unclassified	3.3	459.5	+20

*Includes private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

CAPITAL . . .

New Capital For Construction	Week of Nov. 19	Cum. 47 wks 1959	Chge '58-'59
	millions		%
Corporate Securities	$286.0	$ 3,704.6	−21
State and Municipal:			
All Except Housing	62.0	5,321.3	− 6
Housing	....	107.5	− 7
Federal Loans	0.5	130.2	−30
Federal Aid	....	3,343.4	+29
Total Nonfederal	$384.5	$12,607.0	− 5
Federal Appropriations:			
Projects in U. S.	....	$3,564.1	−16
Outside U. S.	....	22.4	−15
Total New Capital	$348.5	$16,193.5	− 8



CURRENT COST INDEXES

ENR INDEXES (1913=100), 20-cities' average	Week of Nov. 19 1959	% Change from Oct. 22 1959	% Change from Nov. 20 1958
Construction Cost	809.29	−0.07	+4.54
Building Cost	553.33	−0.17	+3.41

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	October 1959 (millions)	Percent Change from last Month	Percent Change from last Year
Total U. S. (ENR reported)	$115,625	+1.1	+2.0
By Ownership—			
Private	50,355	−0.1	+3.5
State & Municipal	50,912	+0.6	+0.9
Federal	14,358	+7.2	+1.1
By Type of Work—			
Waterworks	2,802	+2.0	+4.9
Sewerage	3,688	+1.2	+6.9
Bridges	3,380	+1.3	−0.2
Highways	12,611	+0.5	−3.8
Earthwork, Dams, Waterways	12,180	+5.2	+2.0
Public Buildings	20,862	+1.0	+2.0
Industrial Buildings	16,851	−0.4	+1.4
Commercial Buildings	22,947	−0.03	+3.8
Unclassified, Private	10,557*	+0.3	+6.1
Unclassified, Public	9,749	+2.6	+0.9

* Includes private bridges $89 million.

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1959 Oct. (millions)	1959 10-months (millions)	Percent Change from '58 Oct.	Percent Change from '58 Year Cum.
Total U. S. (ENR reported)	$2,919	$16,266	+59.2	+18.2
By Ownership—				
Private	995	8,312	+63.7	+45.7
State & Municipal	802	5,788	−13.8	− 2.0
Federal	1,122	2,166	+278.6	+ 0.3
By Type of Work—				
Waterworks	86	449	+149.6	+ 2.4
Sewerage	91	566	+67.5	+ 6.8
Bridges	62	352	−33.5	−10.0
Highways	144	1,293	−64.5	−20.2
Earthwork, Dams, Waterways	637	818	+922.4	+31.6
Public Buildings	553	3,362	+ 9.1	− 1.5
Industrial Buildings	236	2,526	+30.1	+135.1
Commercial: Mass Housing	407	2,688	+97.5	+45.0
Other Building	269	2,221	+43.1	− 8.4
Unclassified, Private	83	878**	+155.8	+151.2
Unclassified, Public	347	1,113	+442.6	+ 6.1

** Includes private bridges $9.2 million.

FLOW OF PROJECTS OUT OF THE BACKLOG INTO CONTRACTS

Total U. S. (ENR reported)	732	8,692	−17.8	− 1.2
By Ownership—				
Private	338	3,285	+64.3	+36.6
State and Municipal	297	3,748	−43.8	−21.2
Federal	97	1,659	−37.6	+ 1.6

Housing Outlook: Down, but OK

- **The expected decline of 15% would still mean over one million housing starts next year.**
- **That's good enough to keep homebuilders in most areas from feeling gloomy.**

Homebuilders apparently are feeling less pain than is claimed by some Congressmen and various trade organizations. Nor do homebuilders expect next year to bring any great suffering to the industry.

A decline is generally expected from the 1.3 million starts anticipated for this year. But builders and mortgage lenders in 15 cities surveyed by ENR are not gloomy.

Many builders, while forecasting a dip in 1960, indicated that one reason for such forecasts is "so our Congressmen won't forget we're around." A few expect to expand their operations next year.

And most agreed that decline or not, "next year will still be a good one for me."

This is the reasoning: A decline of as much as 20% from this year's estimated volume of 1.3 million units would still result in more than a million starts. If new housing volume tops 1 million, builders say, few in the industry will be hurt. For that reason, the prospect of a slight decline is generally accepted with equanimity.

More important, most of the builders and lenders predicting a dip in 1960 expect drops of less than 20% in their own areas. Most frequent estimate was 10%. That supports the 10% to 15% decline predicted by the National Association of Home Builders.

Exceptions to the general local range were noted in Seattle, Cincinnati and Los Angeles. One builder in Los Angeles predicted a 25% drop for his own operation. In Seattle, builders pegged the area decline at 20% to 30%.

To some extent, the actions of builders minimize the forecasts of poorer times ahead. Last week, mass housing awards of $105.8 million hit the biggest total since early September and the second consecutive weekly increase recorded, ENR contract figures show.

In October builders announced plans for construction of $407 million worth of private housing—the highest proposed figure for housing in 33 months, according to ENR data.

Proposals during this month's first three weeks totaled $179.8 million, compared to $147.8 million proposed in the same period last year, when the industry was enjoying one of its more confident moods.

The warnings, however, are not falling on deaf ears. Members of Congress are already trying to line up support for a hefty amount of money to support the government-backed housing market.

The proposals are shaped along the lines of the temporary program initiated early in 1958. Congress then provided $1 billion to the Federal National Mortgage Association (Fannie Mae) for the purchase of government-backed mortgages of $13,500 or less.

Rep. Albert Rains (D., Ala.), chairman of the House Banking Subcommittee on Housing, has said continued mortgage-market tightness may force such legislation (ENR Nov. 5, p. 17). He may get Senate support from his colleague, Sen. John J. Sparkman (D., Ala.). One of the first Senate housing bills introduced this year provided for such a measure. It was eliminated, however, from the third and final bill sent to the President.

Builders next year may not push as hard for a Fannie Mae mortgage prop as some Congressmen expect. Reasons for the hue and cry now are typified by a Philadelphia builder. "Builders wail they are having trouble getting commitments, but it's all for public consumption," he says. "I'm doing it too, but I am getting commitments."

New York City builders are turning in greater numbers to conventional financing. The interest charge to the homebuyer is less—6% as against a 6¼% FHA rate, including basic interest and ½% insurance premium. Conventional mortgages are also much simpler for the builder, too. There is less red tape and the resulting time saved brings a cost saving.

Down payments required when a conventional mortgage is obtained are no great problem in New York for two reasons: They are relatively small (10%); and the largest part of the market consists of second or third-time buyers, who have the cash obtained from sale of the previous house.

New York builders now expect starts to drop about 10%—or at most 15%— in Nassau, Suffolk, Kings and Queens counties. These areas in New York City and on Long Island account for the bulk of the state's private homebuilding.

If 1960 starts there should drop 15%, it would be equal to 1958's volume of about 38,000 units. For the first nine months of this year, starts totaled 29,000.

"With that outlook, builders definitely are not downhearted. Even a decline of 15% would still leave us with a good year," says a spokesman for the Long Island Home Builders Institute.

Hardest hit by the tight mortgage market are builders who need commitments for 100 houses or more in their operation, the same source reports. But builders who put up more than 300 a year are in the minority in the area, so no great damage is done.

In Cincinnati, the large-scale builders are expected to fare much better than the smaller ones. For the small builders, "the going will be rough," an industry spokesman predicts.

Private housing starts in Greater Cincinnati are expected to drop 10%, according to builders. Lenders disagree —20% is their guess.

Second mortgages are starting to crop up in that city, but the extent of that type of financing is difficult to estimate. Several builders say they will accept second mortgages, which are then sold to individuals or small investment companies for 60 cents on the dollar.

Philadelphia is the only other city where secondary financing is reported. However, as with Cincinnati, it plays a small part in the market.

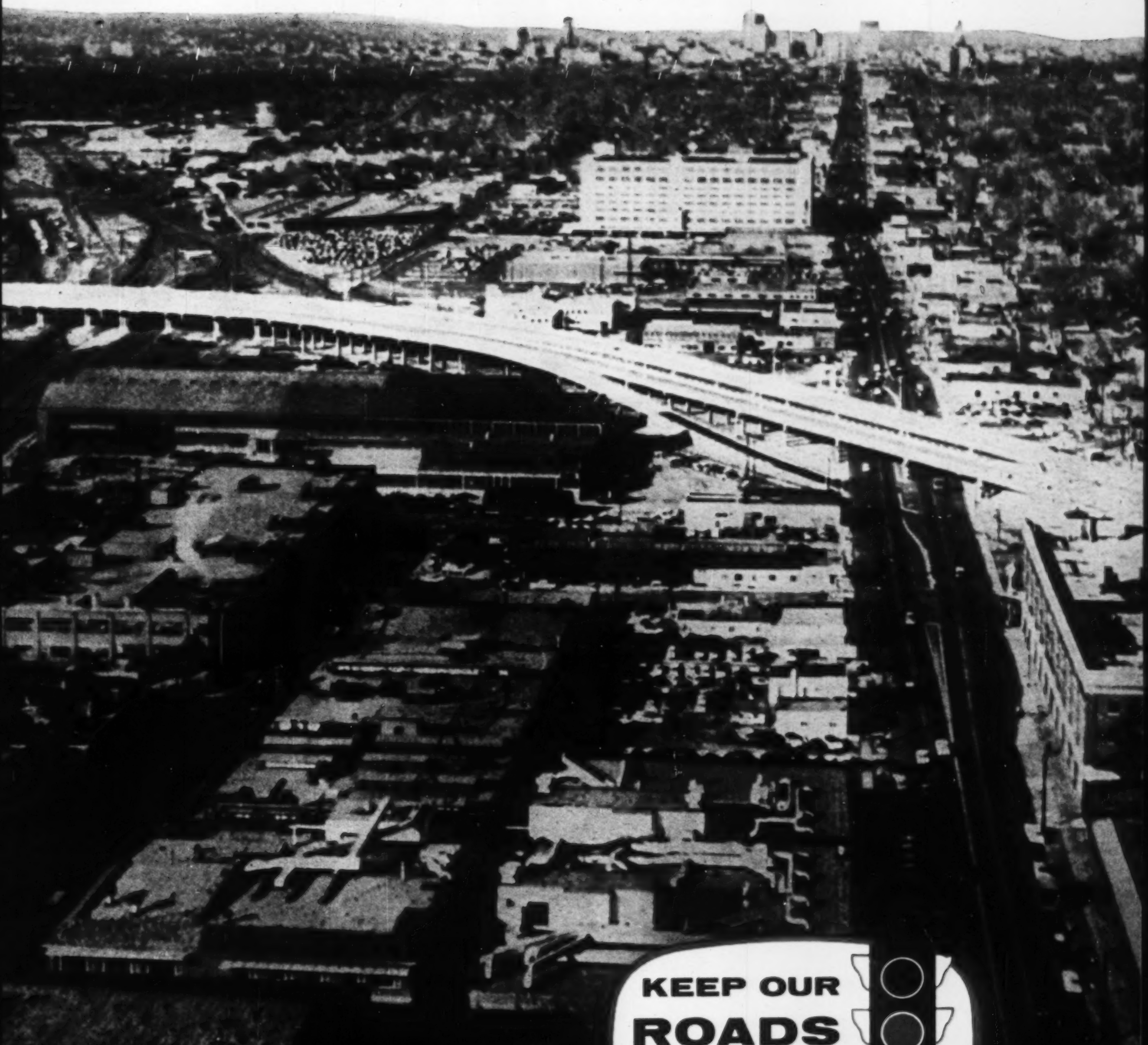
The Philadelphia market is generally considered "strong," and 1960 is expected to be as good as this year. Volume for 1959 is estimated at 20,000 new units, a figure that will be equaled again in 1960.

Sales have dropped slightly in recent weeks, but the decline is attributed to the steel strike. "People have not

Colorado rolls out 964 miles of Interstate Roads

Looking north on Broadway toward downtown Denver on skyline. Elevated section of new Valley Highway crosses center of picture.

Additional pictures on following pages..



KEEP OUR ROADS ON THE GO

BURKHARDT
STEEL COMPANY

Section of structural steel elevated highway in Denver, connecting north-south Interstate Road with road planned from Denver into Utah. This road to the west crosses the rugged Rockies, requiring an exceptional number of bridges.

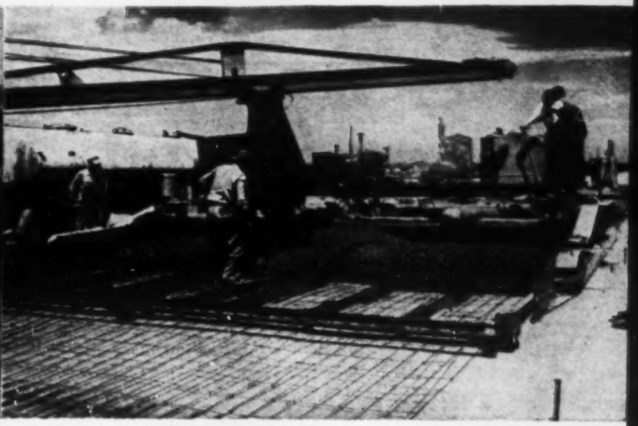
In busy Denver area, steel bridge construction provides maximum clearance on short span. Tubular light poles, bridge rails, and sign supports of hot-dipped galvanized steel provide long, maintenance-free service.

Colorado is building 964 miles of Interstate Roads

Workmen assemble steel girders on new 150-foot bridge near Pueblo where railroad crosses U.S. 85-87.

KEEP OUR
ROADS
ON THE GO

At Colorado Springs, this 393-foot bridge provides quick routing for four lanes of traffic through town on U.S. 85 and 87. Steel reinforcing bars in these tapered piers assure the extra strength needed in this construction.



Colorado's highway engineers devised this efficient non-stop slip-form paver. In one continuous operation, it raises pre-joined strip of welded steel wire fabric to desired height, pours concrete through fabric and over it, levels the surface, forms a perfect edge with the moving edge-guide, and leaves behind an almost completed concrete highway.

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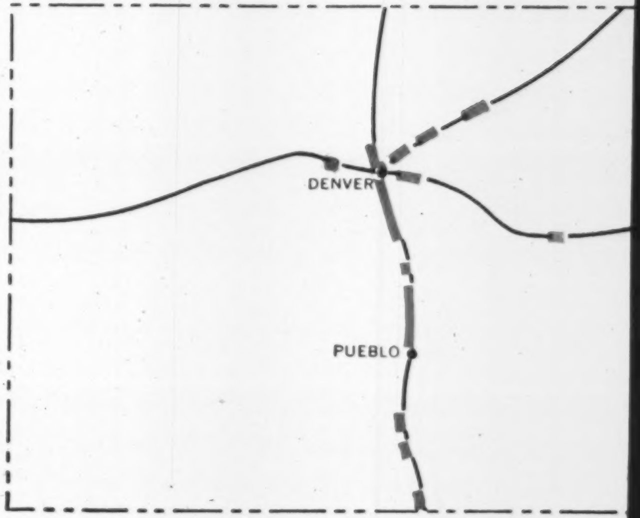

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turned against home ownership. They are just being cautious. It's a wait-and-see-how-things-turn-out attitude," says one of the area's larger builders.

Greatest optimism was expressed by Detroit builders. One builder predicts starts in 1960 will be 25% above 1959. Another predicts a 50% rise. A third says "as far as I'm concerned, sales will double. I'll start 100 next year, compared to 50 this year."

Much of the optimism is based on the belief that 1960 will be a good year for the automobile industry. A good year in autos would be reflected in bigger spending.

Chicago homebuilders are scaling down their projected 1960 starts. Most frequent estimate of decline is 10% to 20%, and the reason is the same as in the other cities—tight money.

Homebuilding permits in the Chicago metropolitan area reached a 10-year low in October, according to Bell Savings and Loan Association. The total of 2,480 permits was 28% below October 1958.

Financing commitments for next year are difficult to get, Chicago builders report. "We can't get a clear reading," says builder Ralph Finitzo.

He will complete close to 300 houses this year, and would like to plan the same number next year. But "the people who give us 200 commitments this time last year won't make the same deal now," Mr. Finitzo says.

Although the cities report high interest rates, only Cincinnati and Dallas report that the rates are discouraging potential homebuyers.

New York City buyers' attitudes seem to typify those in the other 13 cities. "People just sort of shrug, and say, 'I want a house,' and like everything else, it costs dough," is the way one builder describes buyer reaction to interest charges.

Most lenders and builders believe that tight money will be less of a problem by March, almost certainly by June or July. A slight decline in housing will bring demand for money down, supply up, they reason.

Some of the slack in the housing market will be taken up by an increase in construction of rental housing, some sources believe. Next year, 230,000 to 250,000 rental units may be built, according to the National Association of Home Builders. That would compare to 1958's total of 195,000 units. In the first six months of this year, 128,300 rental units were started, according to the U. S. Department of Commerce.

Builders in most of the reporting cities, however, show little inclination to tap the rental market. Only San Francisco, Philadelphia, Chicago, Dallas and New York City report that multiple housing is a significant factor in the private housing market.

Denver, Seattle, Baltimore, New Orleans, Boston, Atlanta, Detroit, Cincinnati, Cleveland and Los Angeles report only minor activity in rental construction.

Rental housing construction, however, is expected to show an upward trend through the 1960s. "Those persons born in the '30s are the home-buying prospects now, but there were not many born in those depression years," says Nat Rogg, NAHB economist. The retirement-age group represents an ever increasing part of the population, "and it is these people who want to rent, so the maintenance and other responsibilities fall on someone else," Mr. Rogg adds.

Business in Brief . . .

• New taxes needed—To meet the rising costs of state government and construction, Gov. J. Lindsay Almond, Jr., says Virginia will need a new source of revenue. He will ask for a general sales tax of 3%.

• Most for construction—Spending by states will increase from 5% to 10% annually in the "foreseeable future," according to a University of Michigan economist. Among factors cited: increased demand for college education, "obvious needs" for interurban and metropolitan area highway facilities, and growing public recognition of the states' role in community redevelopment and housing.

• High bridge, low bridge—The North Carolina State Highway and Public Works Commission promised residents of Wilmington a bridge over the Cape Fear crossing. But the City Council is debating between a $16-million high level bridge over the harbor or a $6-million low-level draw bridge north of the harbor.

• Airport deadline extended—Airport aid applications for fiscal year 1961 have been extended from November 30 to December 15. Applications already submitted may be revised. Federal Aviation Agency expects to announce the '60 schedule by the end of February.

Delaware Road Contracts Boosted by $2.8 Million

Richard A. Haber, chief engineer of the Delaware State Highway Commission, will report weekly to the department's commissioners on "over-runs" and "authorized additions" to highway contracts.

The new arrangement is a compromise settlement of a dispute over "extras" on highway contracts. There had been demands that authorization for all over-runs of more than 10% be obtained from the full commission.

Last year, over-runs and authorized additions totaled $2.8 million—about 14% of the $19.8 million in highway contract work approved by the highway commission.

If an over-run is more than 5% of the total cost of a contract, the chief highway engineer is required by highway commission policy to submit a letter of explanation. So far, these over-runs have always been approved.

An authorized addition is a supplemental contract awarded by the chief highway engineer without first obtaining bids. Over-runs are deviations from estimated quantities called for in the plans.

Authorized additions are provided for in the standard specifications policy of the state highway department. S. Samuel Arsht, attorney for the highway department, defended the legality of this policy.

Aggregates Firm Ruled Antitrust Act Violator

The Federal Trade Commission has ordered Erie Sand & Gravel Co. of Sandusky, Ohio, to sell assets acquired in 1955 when it bought out a competitor. Alleged violation of the Clayton Act's antimerger provisions are the basis of the FTC action.

Erie Sand & Gravel bought the Sandusky Division of Kelley Island Co. for $1 million when Kelley liquidated its business. In addition to various dock properties in Ohio and Pennsylvania lake ports, Erie Sand & Gravel obtained three dredging vessels in the transaction.

The full commission upheld an FTC examiner's finding that the acquisition eliminated competition by giving Erie Sand & Gravel a monopoly in the sale of lake sand dredged from Lake Erie and sold to customers in Ohio, New York and Pennsylvania (ENR Dec. 25, 1958, p. 127). Its market area covered the southern shore of Lake Erie from Buffalo, N. Y. to Sandusky, extending 12 miles inland between those points.

Let's Talk It Over, Labor Says

- **Labor's proposal for a high-level labor-management meeting to end class warfare drops the growing problem in management's lap.**
- **Meany is confident agreement can be reached on voluntary bargaining principles and guide lines that would protect the public interest.**

AFL-CIO President George Meany's proposal for a White House conference on labor-management relations is essentially a bid by organized labor to end the class warfare that has permeated collective bargaining, 1959 style. Pending further action by President Eisenhower, the buck has been passed to management.

The class warfare has been rampant in the steel dispute, is now reaching significant proportions in the railroad industry, and is spilling over into other industries, affecting the climate and the atmosphere in which all the AFL-CIO unions and their employers bargain.

Basically, the struggle represents an effort to woo public sympathy rather than an attempt to protect the public interest.

One of the results, aside from the truculence consciously and unconsciously generated on both sides, is a broadening of collective bargaining issues to an extent that gives preparations for upcoming bargaining sessions no place to begin and no place to end.

One of the best examples of what is happening is the rail dispute, which has joined the steel impasse as the "cause" of the entire AFL-CIO labor movement.

As in the steel situation, the big issue is the change of work rules to eliminate what management calls wasteful work practices and featherbedding. This, in turn, has opened the door to heated discussions of a host of complex problems, including management prerogatives, the role of human values in labor relations, management abuses, productivity and inflation.

All of these have been seized upon by both the operating and nonoperating rail unions, following management advertisements claiming that railroad featherbedding, sired by obsolete work rules, is costing the nation $500 million a year. The railroads say this "produces inflation" and is a "senseless waste" no nation is rich enough to afford. They promise to seek from the unions an agreement "lifting this featherbedding burden from the American public." Labor flatly denies the charges.

Rail unions have variously called this a perversion of collective bargaining, an attempt to build up public prejudice against unions and an effort to "brainwash the jury" (namely the public). They have accused management of "slander" and of a "callous disregard for the public interest."

The unions have asked for a 12 to 14% pay raise for the operating brotherhoods and for 25 cents an hour for nonoperating employees. Management has demanded pay cuts estimated by the unions to run from 15 to 33 cents an hour, plus work rule changes. Mediation has begun under the Railway Labor Act: Strikes, general or selected, are possible under the law early next year.

In attempting to present their side of the picture to the public, the rail unions have embarked on a "tooth for a tooth" campaign that includes these union claims and accusations against railroad management:

- The railroads are misusing collective bargaining to create an impression of "gloom and distress" conducive to legislative demands for "financial benefits," "tax favors" and permission to drop "less profitable lines" at the public's expense.
- Management has indulged in the "looting and bankruptcy" of many railroads. It has engaged in the "featherbedding of profits" by allowing properties to decay, by voting lucrative stock options and high salaries for executives and by seeking "country club" amenities as business expenses.
- The number of top rail executives and their total pay nearly doubled in the period 1948-58, while the number of jobs for workers was slashed 36%.
- Average hourly pay of railroad workers is comparatively low—$2.47 in July.
- Productivity gain of railroad workers is high—43.6% during the period 1948-58.
- Management work rule demands are "unrealistic," are incompatible with safety, and violate "established craft lines."

Ironically, this is the kind of class warfare the AFL and CIO publicly eschewed at the time of the 1955 labor merger, when the new federation promised to "responsibly serve the interests of all American people" at the collective bargaining table.

It also symbolizes the trend Mr. Meany and President Eisenhower indicate they would like to see reversed to promote the public welfare and to prevent further federal intrusion into collective bargaining.

The President and Mr. Meany agree that collective bargaining needs less heated discussions of common problems, a greater amount of mutual understanding and reassertion of the public welfare as the controlling standard.

Mr. Meany has expressed the conviction that labor and management "can come to an agreement on general principles and guide lines" beyond which neither side could go in collective bargaining without "inviting public censure."

He has also suggested that an exchange of views at such a level could promote sounder labor-management relations generally. Technological problems, he says, need joint attention.

It is Mr. Meany's suggestion that the conference be confined to union and industry leaders. His proposal does not embrace representatives of the public. The government would be limited to "an advisory and technical role rather than one of direct participation."

President Eisenhower, who is receptive to the idea of a White House conference, has promised to explore it further. His next step is to find out how representative management leaders feel about the proposal.

A similar approach to Taft-Hartley amendments for the construction industry had little success several years ago. But other kinds of top-level exchanges have paid dividends in the launching of the industry's "Ten Commandments" and in the formation of the Construction Industry Joint Conference.

(Labor continued p. 98)

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High Court Did Not Give Union Monitors Free Hand

Teamster President James Hoffa indicated last week that the U. S. Supreme Courts's refusal to review the Circuit Court ruling modifying and affirming the union monitor system established by the lower court does not put an end to legal challenges of the monitors' powers and actions.

Mr. Hoffa said he and his union will comply with the lower court rulings but said he would contest any "unconstitutionally acceptable" orders.

The Supreme Court gave no reasons for its refusal to grant review. It has not affirmed the legality of the monitor system. It merely allows the Circuit Court ruling to stand.

Under that ruling, the monitors are given advisory powers only.

Open Shop Talk Follows Long Strike in Texas

Talk of "going open shop" is increasing among San Antonio, Tex., contractors as collective bargaining stalemates continue to keep heavy construction work in that area at a standstill.

Four basic crafts—operating engineers, iron workers, carpenters and laborers—are asking for wage increases ranging from 25 to 40 cents an hour. They struck on September 25.

"There's no telling how long this may go on," said one contractor last week. He saw no indication of a lowering of union demands and said contractors couldn't begin to pay the increases asked.

Meanwhile, two contractors have reportedly resumed operations on an open shop basis without "running into any difficulties yet."

Management's 'Toughness' May Prove Short-Lived

Management's "get tough" attitude toward labor hit its high-water mark in the steel strike and will begin to fade.

That's the prediction of G. S. Odiorne, director, University of Michigan's Bureau of Industrial Relations.

Mr. Odiorne says the "hard" line in collective bargaining might last two or three years, but is doomed to failure for several reasons:

- **Unions will retaliate with a toughness of their own, producing an "armed camp" that the public will not tolerate.**
- **A militant attitude on the part of management is apt to strengthen rather than weaken unions.**
- **Toughness does not necessarily lead to higher worker productivity.**

Labor in Brief . . .

• **A promise to help**—Jay Kramer, chairman of the New York State Labor Relations Board, has promised "prompt and efficient" handling of labor disputes that come to the board under the no-man's land provisions of the new labor law. Since November 13, small firms that can't meet the national labor board's jurisdictional standards have had the right to resort to state agencies.

• **Tit for tat**—Compulsory registration of commercial firms that supply strikebreakers, and public disclosure of their activities, have been recommended by a special state investigating committee set up by the New York State Industrial Commission. Supplying strikebreakers tends to undermine collective bargaining, create bitterness, the commissioner says.

• **Investigations under way**—Labor Secretary James P. Mitchell reported last week that alleged violations of the new labor law have already produced 97 active investigations by the department. Justice Department will be given all pertinent evidence.

• **Eye on political action**—U. S. Attorney General William Rogers says he is keeping a lookout for possible legal violations in teamster plans for a political action department. Voluntary contributions for financing the department's activities, would be all right, he said, but any element of coercion would raise a legal question.

• **Canadian carpenters strike**—An estimated 1,000 union carpenters have struck members of the Hamilton, Ontario, Builders' Exchange. Bargaining demands include a 50-cent hourly wage increase. Members of other crafts ignored the carpenters' picket lines last week and other construction was continuing.

• **Trouble on bonding**—U.S. Labor Department officials are attempting to clear up some of the confusion on costs, coverage and effective date of bonding requirements under the new labor law. Current conferences with labor, management and bonding companies are expected to lead shortly to new interpretive rules.

British Labor Checking Strikes

Labor unions in Great Britain are as sensitive to public opinion as their American counterparts, but they seem to be reacting in a different way.

The Trades Union Congress, Britain's central labor organization, for example, has started a thorough internal union inquiry into the causes and motives of recent strikes.

It feels the time has come to repair the damage done to the reputation of British unions in the public mind by unofficial work stoppages. A wave of such strikes has hit the country in the last year.

First step is the mailing of four questionnaires to all member unions asking for information and comments on: unofficial labor disputes; unofficial disputes subsequently made official by union executives; official disputes; disputes that led to unemployment of workers not directly involved in the dispute.

The current inquiry will seek background information about relations with employers.

TUC officials feel a great deal of the blame for recent industrial strife can be placed squarely on management shoulders, although they admit the need for serious internal union reforms. Political aspects of strikes may be the subject of a later investigation.

TUC hopes to have answers to the first inquiries by December 18. But no final conclusions are expected until well past the first of the year.

Two-County Roofers Local Settles 13-Week Strike

Roofers in California's Monterey and Santa Cruz counties have returned to work after a 13-week strike.

Settlement came in the form of a short-term contract that granted an immediate wage increase of 10 cents an hour, making the new journeyman scale $3.80. Fringe benefit contributions remain the same—10 cents for health and welfare, 15 cents for vacation. Contract expires August 1, 1960.

The Associated Roofing Contractors of Bay Area Counties, Inc. had asked for a wage freeze. Union had sought 40 cents an hour, eight paid holidays and a pension plan.

At the association's request, the union has committed itself to area-wide bargaining in the future if an area agreement can be reached in the counties of Alameda, Contra Costa, San Francisco and San Mateo.

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Furnishing and Delivery of Gates, Stop Logs and Gate Transfer Car for Intakes in Waterways

POWER AUTHORITY OF THE STATE OF NEW YORK ADVERTISEMENT FOR PROPOSALS
SPECIFICATION NO. PA-N-23037
NIAGARA CONTRACT NO. NP46

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the furnishing and delivery thereof f.o.b. destination, Niagara Falls, Niagara County, New York of the Gates, Stop Logs and Gate Transfer Car for Intakes in Waterways until 10:30 A. M. Eastern Standard Time on the 17th day of December, 1959, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be opened and read aloud.

The work consists of fabricating and delivery thereof of approximately 1,530 tons of structural steel gates, stop logs and gate transfer car for intakes in Waterways.

Delivery of the above items shall be completed on or before May 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-N-23037

Bids: See Advertisement.

Iraqi Republic Iraqi Ports Administration—Basrah

Tenders are invited for the supply and delivery at Port Stores Jubailah—Basrah of the following materials:—

	Closing Date
1) Tender for the supply of Plan Printing & Developing Machine (Electric)	13.12.1959
2) Tender for the supply of Machines and Equipment for Workshop	20.12.1959
3) Tender for the supply of Two Fire Fighting Engines......	20.12.1959

Forms of Tender and specifications are obtainable from the Iraqi Republic Representatives or from Mudir, Purchasing and Tender, Iraqi Ports Administration-Basrah, during working hours, on payment of ID.1/—for each Tender (which will not be refunded).

The Tender should reach the Iraqi Ports Administration, before 13.00 hours of the closing date of each tender mentioned above.

These specifications are also available from the Embassy of the Republic of Iraqi, 2135 Wyoming Ave., NW, Wash. D. C., on payment of $2.80 each.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division,
Engineering News-Record
Class. Adv. Div.,
P. O. Box 12, N. Y. 36, N. Y.

Bids: December 18, 1959

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., eastern standard time on the 18th day of DECEMBER 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany 1, New York						
Saratoga (Rtes. 9 & 67)	FARC 59-168	Clifton Park-Round Lake, S.H. 1795; Mechanicville-Malta, S.H. 610; Malta-Saratoga, S.H. 611 Project F-U-639(17)	7.42	Asph. Conc. Pavt.	$100,000 Plans $5	$1,813,000
Saratoga (Rte. 9)	FARC 59-166	Clifton Park-Round Lake, S.H. 1795, 1795A Project F-FG-639(13)	1.84	Asph. Conc. Pavt. = 1.81 Miles; Misc. Work = 0.03 Mi.; 2 Brs. R.C. Twin Boxes 31′ and 30′; 2 RR Seps. Plate Girders 60′ and 80′	$82,000 Plans $5	1,495,000
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Montgomery (Rte. 5)	FAC 59-20 FASH 59-25 FARC 59-162	City of Amsterdam: East-West Arterial Highway; Amsterdam East: Rte. 5 Conn. Amsterdam-Cranesville, S.H. 180 and Hoffman-Cranesville, S.H. 5126 Project F-U-349(16)	5.28	Asph. Conc. Type 1A Pavt. = 4.45 Miles; Grad. & Drain = 0.83 Mile; R.R. Sep. 2 Sp. Girder 161.4′	$220,000 Plans $5	$4,036,000
Oneida, Herkimer & Montgomery (Rtes. 5, 28 & 274)	R.C. 59-163	East Creek, S.H. 5159, Br. No. 1; Holland Patent-Frenchville, Pt. 2, S.H. 1546, Br. No. 1; Poland-Trenton, S.H. 5559, Br. No. 2	....	Clean & Paint 3 Bridges	$1,000 Plans $5	18,000
DISTRICT No. 3, E. E. TOWLSON, Acting District Engineer, 333 E. Washington Street, Syracuse, New York						
Cortland, Seneca, Oswego & Tompkins (Rtes. 13, 11, 49, 69, 392 & 414)	R.C. 59-164	Truxton-Deruyter, Pt. 1, S.H. 5141, Br. No. 1; Pulaski-Sandy Creek, S.H. 5275, Br. No. 1; Constantia-Cleveland, S.H. 1554, Br. No. 1; Parish-Camden, Pt. 1, S.H. 5226, Br. No. 1; Ithaca-Dryden, Pt. 1, S.H. 681, Br. No. 1 and Br. No. 2 and Seneca Falls Village, S.H. 5100, Bridge No. S-6	....	Clean & Paint 7 Bridges	$1,000 Plans $5	17,000
DISTRICT No. 7, R. W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York						
Jefferson	FASS 59-27	Rices-U.S. 11, Co. Rd. 62 Project S-532(1)	2.13	Asph Conc. Type 1A Pavt. = 2.05 Miles Misc. Work = 0.08 Mi.	$923,000 Plans $5	415,000
St. Lawrence	S.H. 59-26	Horseshoe-Veterans Memorial Hospital	4.10	Bit. Double Surf Treat. Pavement	$12,000 Plans $5	208,000
DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Westchester (Rte. 133)	R.C. 59-165	Mt. Kisco-Millwood, S.H. 587	1.60	Asph. Conc. Pavt.	$12,000 Plans $5	213,000
Westchester (Int. Tour. Rte. 487)	FITS 59-19	Interstate Route Conn. 520 (Cross Westchester Expressway) (Elmsford Section) Project I-487-2(18)	3.12	Traffic Signs & Delineators	$5,000 Plans $5	89,000
DISTRICT No. 9, J. C. FEDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Rtes. 17 & 26)	FARC 59-167	Binghamton City: Vestal Ave. By-Pass FAC 49-8; Court Street-Rte. 17 Conn. FAC 54-17; Brandywine Ave. Extension FAC 52-3 and Brandywine Ave. Extension Pt. 2 FAC 55-6; Brandywine Ave. Extension, FASH 52-8; Brandywine Ave. Extension Pt. 2 (No. Chenango St. Intersect.) FASH 55-4 & Vestal S.H. 420 Project Nos U-496(15), U-1019(5)	5.41	Chain Link & R.O.W. Fencing	$7,000 Plans $5	122,000
Delaware (Rte. 97)	R.C. 59-143	Hancock-Long Eddy, Pt. 1, S.H. 5671, Br. No. 1	0.08	Bridge Repairs	$500 Plans $5	$9,500
DISTRICT No. 10, M. E. GOUL, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Kings, Nassau & Queens (Rtes. 27 & 27A)	FABLP 59-1 FAVWE 59-1	Belt Parkway (Cowanus Parkway to Whitestone Parkway); Van Wyck Expressway (Belt Parkway to Grand Central Parkway) Project U-777(6), U-1085(17)	34.92	Alum. Mall Barrier Rail, Fenc. & Misc. Work	$80,000 Plans $5	1,490,000
Nassau	FAWOBE 59-1	Wantagh-Oyster Bay Expressway (Old Country Road, Co. Rd. No. 4 to Jericho Turnpike-Plainview Rd. S.H. 436), Contract No. 1 Project U-1110(2)	3.34 (7.36 Acc.)	9″ Colored Cem. Con. Pavt. 2 @ 37′ Wide = 3.15 Mi.; Misc. Work = 0.19 Mi. (Acc. = 5.22 Mi. Cem. Conc. Pavt. and 2.14 Mi. Asp. Conc. Pavt.); 5 Hy Seps. Comp. Beams 107.7′, 107.1′, 95.9′, 48′ & 131.5′; 1 Hy. Sep. R.C. Rigid Frame 98.3	$350,000 Plans $10	6,570,000
Queens (Int. Tour. Rte. 495)	FIHHE 59-2	Interstate Route Connection No. 514 (Horace Harding Expressway, Sect. 1, Cont. 5), (Grand Central Parkway to Parsons Boulevard) Project I-495-1(34)	2.72	Roadside Development	$11,000 Plans $5	198,000
Queens (Int. Tour. Rte. 495)	FIHHE 59-3 FAHHE 59-4	Interstate Route Connection No. 514 (Horace Harding Expressway Section II); Horace Harding Expressway), Sect. II, Cont. 5) Project I-495-1(35), U-862(24)	2.72	Roadside Development	$11,000 Plans $5	198,000

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5261) will be received at Denver, Colorado, until 2 p.m., Mountain Standard Time, January 5, 1960, for furnishing one (1) hydraulic hoist and accessory equipment for a 10-foot by 20-foot fixed wheel gate for Trinity Dam, Central Valley Project, California. Delivery is desired within 330 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5260) will be received at Denver, Colorado, until 2 p.m., Mountain Standard Time, December 29, 1959, for furnishing two (2) 300-ton double-trolley, motor-operated traveling cranes and one (1) set of lifting beams for Glen Canyon Power Plant, Colorado River Storage Project, Arizona-Utah. Delivery is desired within 390 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

Read the Official Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

Bids: See Advertisement.

The Port of New York Authority

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, N. Y. until 2:30 P. M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract NYA-920.013—New York International Airport—Flush Lights for High Speed Turnoffs—Deposit $30.00 per Set of documents—Bids will be received until 2:30 P. M. on Tuesday, December 15, 1959.

Contract NYA-950.003—New York International Airport—Additional Electrical Capacity—1960 Phase—Deposit $30.00 per set of documents—Bids will be received until 2:30 P. M. on Tuesday, December 22, 1959.

Contract BP-190.002—Brooklyn-Port Authority Piers—Pier 6—Bulkhead and Deck Construction—Deposit $30.00 per set of documents—Bids will be received until 2:30 P. M. on Tuesday, December 22, 1959.

Contract GWB-190.028—George Washington Bridge—Lower Level Expansion—New Jersey Approach—Phase 5—Deposit $100.00 per set of documents—Bids will be received until 2:30 P. M. on Tuesday, December 29, 1959.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue, New York 11, N. Y. Documents will be furnished upon receipt of the above deposit (each set including one copy of the Contract Drawings) for not more than three sets to any one company. Additional sets will be furnished upon payment of an amount for each set equal to the deposit indicated above, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, November 26, 1959

Bids: December 11, 1959

Reconditioning, Reshaping and Surface Treatment
Route No. 1—South Road Between Kilometers 27 and 65

DIRECTORATE OF HIGHWAYS
MINISTRY OF COMMUNICATIONS AND PUBLIC WORKS
REPUBLIC OF HONDURAS
ADVERTISEMENT FOR BIDS
CONTRACT No. 502—P (DST)

Sealed Proposals for the above noted contract described herein will be received by the Director General of Highways at the Offices of the Ministry of Communications and Public Works, Tegucigalpa, D. C., Honduras, C. A., until 10:00 A.M. Honduras Time on December 11, 1959 and then publicly opened.

The work to be done under this Contract shall be commenced on the date specified in the Notice to Proceed, or such earlier date mutually agreed upon by the Ministry and the Contractor. All work under the Contract shall be completed within 240 calendar days after such date, and consists of furnishing all plant, labor, materials and equipment, and performing all work in strict accordance with the Specifications, Schedules and Drawings forming parts thereof, for the Reconditioning, Reshaping and Surface Treatment of the South Road, (Route No. 1), between Kilometers 27 and 65.

Proposals shall be submitted covering all the work on the South Road, (Route No. 1), between Kilometers 27 and 65 as delineated on the Unit Price Schedule Form.

The approximate quantities of the principal items of work are:

Reconditioning and Preparing Subgrade	38 LK
Select Material Base	42,000 CM
Two Course Surface Treatment	312,000 SM

Prospective bidders can obtain copies of the plans, specifications and contract documents for a fee of 50 Lempiras from the Office of the Director General of Highways, Tegucigalpa, Honduras. A Contractor's Financial Statement and Experience Questionnaire and a Plan and Equipment Questionnaire on form supplied by the Directorate of Highways will be required of all bidders. All proposals must be on the forms prescribed by the Directorate of Highways and must comply with the terms and conditions set forth in the Contract Documents.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of ten (10) percent of the total amount shown in the Proposal Form Unit Price Schedule in the form and manner specified in the Instruction to Bidders.

Individuals or firms doing business under fictitious names and all foreign corporations shall register with the Ministry of Communications and Public Works, Tegucigalpa, D. C., Honduras, C. A., before any proposals submitted by such corporations, individuals or firms will be considered.

Award of the above contract, if any award be made, will be to the lowest responsible bidder or bidders. The Government reserves the right to reject any and all proposals and further reserves the right to waive any informality in proposals received when such rejection or waiver is in the best interest of the Government.

The Government of Honduras has entered into a Loan Agreement with the International Bank for Reconstruction and Development for a loan in various currencies to finance the foreign exchange costs of a Highway Construction Project of which this contract will form a part. The Government of Honduras has also entered into a Loan Agreement with the Development Loan Fund of the United States Government for a loan to finance the local currency costs of the Project.

DIRECTOR GENERAL OF HIGHWAYS
Ing. Angel Casanova B.

October 19, 1959.

Bids: December 2, 1959

Narrows Bridge Piers

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattam, New York 35, N. Y., as follows:

Until 11 A.M. on Wednesday, December 2, 1959

For Narrows Bridge Contract No. NB-1B, Brooklyn Tower Pier. The bid must be accompanied by a deposit in the amount of $250,000.00

and

For Narrows Bridge Contract No. NB-1S, Staten Island Tower Pier. The bid must be accompanied by a deposit in the amount of $250,000.00.

Bidders may submit bids for either one or both of the above contracts.

Piers will be founded on open dredged caissons in The Narrows, New York Bay. Alternate design for Brooklyn pier provides shallow open dredged caisson supported on 36" diameter piles to rock.

Plans, specifications and contract documents may be purchased at the office of the Authority for $25.00, which will not be refunded.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5258) will be received at Albuquerque, New Mexico, until 10 a.m., Mountain Standard Time, December 22, 1959, for furnishing labor and materials for channelization of the Rio Grande, Belen Area, Unit 4, New Mexico, Middle Rio Grande Project. Location north of Belen, New Mexico. Principal items are 540 acres clearing; 199,000 cu. yds. excavation for pilot channels; 61,000 cu. yds. embankments; 11,530 units—metal jack units for jetties; and other work. Completion time 400 days. For particulars, address Bureau of Reclamation, P. O. Box 252, Albuquerque, New Mexico; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

Federation of Malaya
Cameron Highlands Scheme
Contract No. 5

Tenders are invited for the supply and erection of switchgear to be installed on behalf of the Central Electricty Board, Federation of Malaya.

The Contract now advertised will comprise 132 kV, 11 kV and 415 Volt Switchgear, Shunt Capacitors, Power Line Carrier, Control, Relay and Ancillary Equipment.

Tenders are invited only from firms who are prepared to submit complete tenders.

A short precis of the extent of the work for which complete and comprehensive offers are invited may be had on application to Messrs. Preece, Cardew & Rider, 8, 10 & 12, Queen Anne's Gate, London, S.W. 1.

Tender documents, which will be available from 14th December, 1959, and returnable by 28th March, 1960, may be obtained from the same address on receipt of a payment by cheque for £20 in favour of Preece, Cardew & Rider. This payment will not be refunded.

At a later date offers will be invited for Transformers, Cables and Lighting. Persons interested in such should NOT now apply, but await further advertisements.

The Central Electricty Board do not bind themselves to accept the lowest or any Tender, nor will they be responsible for any costs incurred by Tenderers in making their Tender.

EMPLOYMENT—OPPORTUNITIES

ADDRESS BOX NO. REPLIES TO: Box. No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Sales Manager: Successful, high-rated, young, manufacturer of building, construction machines, requires General Sales Manager with proven accomplishments, same capacity, same industry in past 10 years. Able to organize and develop hard-hitting sales. Progress to General Manager. Salary $15,000; more depending on increased sales and profits. Reply fully, Box 72, Cincinnati, 38, Ohio.

Top level Checker, capable of checking any type structures; such as bridges, (beam, girder, bascule, etc.), commercial buildings, large gantry cranes, etc. Must be willing to help with detailing (rarely) if necessary. One of the three top jobs in the Drafting Dept. Permanent. Opening due to retirement of employee with 32 years service. Solid Milwaukee, Wisconsin fabricator. P-2991, Engineering News-Record.

Construction Superintendent—Experienced in Industrial and Public Buildings. Must be efficient and able to assume complete responsibility for Project. Send Qualifications and Salary desired. P-2971, Eng. News-Record.

Public Works Engineer—Immediate Opportunity for a graduate Civil Engineer with California Registration and six years experience. Annual Salary $9,348—$11,364 depending on qualifications. Kern County Personnel Depart., Civic Center, Bakersfield, California.

Wanted: Superintendent for 1½ ton Standard Asphalt Plant. Salary. Full time position. One month's vacation winter months. Other benefits. Age: 30-45. Location: Connecticut. Must be able to handle entire operation & run tests etc. Present volume between 35 & 40,000 tons yearly. When replying state approximate weekly salary desired and past experience or education. Engineering degree preferred but not essential. P-3008, Engineering News-Record.

Engineers. Architectural, Structural, Heating & Ventilating engineers with 5 to 10 years' experience on all types of industrial plants. Positions are with prominent consulting Engineering Company in Eastern Pennsylvania. Please submit complete resume with salary requirements to P-2997, Engineering News-Record.

(Continued on following page)

EMPLOYMENT OPPORTUNITIES

NATIONAL COVERAGE

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch in measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

DECEMBER 10TH
ISSUE
CLOSES
NOVEMBER 30TH

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take 1/2 of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division of
ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

OVERSEAS
PROJECT MANAGER
HARBORS & DOCKS

An exceedingly challenging position is available for a Civil/Structural Engineer with a minimum of 12-15 years experience, with at least the past five years in the senior responsible position on major civil engineering projects, especially harbor and marine facilities. Experience will include both design and construction, plus analysis and reports relating to sedimentation, foundation investigation, tidal silting and erosion, harbor channels, and navigation aids.

He will have overall responsibility for reconnaissance and field investigation, surveys, data procurement and analysis, preparation of engineering study reports, design, working drawings and specifications.

This engineer must be an excellent administrator with proven experience in dealing with government personnel, especially foreign government officials. Project is in a relatively primitive country with minimum comfort and sanitary facilities. Duration is estimated at 18 24 months. Salary is geared for a top man. Desire is that he will go single status, as family accommodations are minimum.

This position is with a leading planning and engineering firm of world-wide scope, with home offices located on the West Coast. Please submit complete resume to

P-2973, Engineering News-Record
1125 W. 6th St., Los Angeles 17, Calif.

BLAW-KNOX

ENGINEERS—DESIGNERS
Construction Equipment

Our expanding program of technical and sales development has created permanent openings for experienced engineers, designers, and draftsmen.

Reply in confidence to:

Industrial Relations Manager
Construction Equipment Division
Blaw-Knox Company
Mattoon, Illinois

Construction Superintendent Wanted

—under 45—experienced in foundations, pile driving, bridges, concrete, including form work and industrial construction, no buildings. Permanent position, the Middlewest, with large, heavy contractor. Most unusual opportunity for suitable man. Please state age, education, experience outline and salary wanted.

P-3030, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

• *POSITIONS VACANT*

(Continued from preceding page)

Engineer-Estimator: Northwestern Ohio and Southern Michigan. Bridges, concrete, piling, excavating sewers. Ability to supervise work desirable, but not essential. Small organization. P-3078, Engineering News-Record.

Estimator—Quantity take-offs, heavy construction, water and sewage. Send resume of education, experience and references. Albany—Schenectady—Troy area. P-3062, Engineering News-Record.

Sewer Superintendent. Good position for right man—must be able to organize and handle several crews, be familiar with wellpointing, rock blasting, steel & wood sheeting & shoring, tunneling, (not under air) heavy equipment, costs and help with estimating. Mid West location—immediate work. P-3047, Engineering News-Record.

Engineers (2) 10 yrs. min. exp.; planning and Design—Water & Sewerage Projects. Send complete resume, present salary, etc., prior to interview. P-3052, Engineering News-Record.

Graduate engineer with design experience in hydraulics, hydrology, flood control, hydroelectric and/or allied fields. Permanent employment with large midwestern consulting firm. Send resume and salary requirements to P-2710, Engineering News-Record.

Civil Engineer—experienced in surveying, preparing plans for municipal improvements and inspection of municipal improvements for Town Engineer's office. Starting salary $5,000.00-$6,000.00 depending upon qualifications. Submit resume to L. M. Collins, Town Engineer, Westfield, New Jersey.

Soils Engineer; prefer M. S. with minimum of 2 yrs experience. U. S. citizen. Reply in full giving availability and salary desired. Goodkind and O'Dea Inc., 108 W. Lake St., Chicago, Ill.

Civil Engineer registered in Pennsylvania— experienced in handling complete engineering of land subdivisions, road, storm & sanitary, client & municipal contact. Excellent future for ambitious man. Small, well established firm, suburban Philadelphia. Furnish resume and salary range. P-3133, Engineering News-Record.

Senior Sanitary Engineer—experienced in Sewage Treatment Plant design—permanent position southern Connecticut. P. W. Genovese and Associates, 294 Elm Street, New Haven, Connecticut.

Senior Building Inspector—High School graduate with training in structural engineering; 5 years experience as master craftsman, supervisor in building trades or construction inspection. $6,000-6,900. Send complete resume of education, experience and references to Personnel Director, City Hall, Ann Arbor, Michigan.

• *POSITIONS WANTED*

General construction superintendent, over 30 years experience, all types and sizes of bridges, Marine and industrial foundations, one or large groups of structures. Caissons and cofferdams, fully qualified to supervise and train foremen and superintendents all crafts, plan and expedite job, set up cost systems, co-ordinate job with subs, etc. Available at once for interview, no degree. Mobile can relocate. PW-2961, Engineering News-Record.

• *POSITIONS WANTED*

Graduate B.S.C.E. with 10 years experience in most phases of reinforced and structural steel erection including all types of municipal bldgs, flood control work and towers. Past 3 years as sub-contractor on same. Desire position in Calif. area near Los Angeles or San Francisco. Age 35. PW-2992, Engineering News-Record.

Wanted: Administrative Position. Experienced Government Contracts, specifications; private contracts and local codes. Responsibility administrative direction, estimating, sub-contracts, securing prices and materials, stock and material control, preparing varied schedules applicable to above of M.E. nature for General Contractor. Past two years General Manager leading manufacturer's distributor Air Conditioning and Refrigeration including Sheet Metal Department. Varied field experience—Mechanical Engineering. Member SAME & RSES. Available 60 days. PW-2967, Engineering News-Record.

Civil Engineer, Construction executive, Canadian, 41, thirteen years Latin American experience, available on short notice for local or foreign assignment. Resume on request. PW-3013, Engineering News-Record.

Civil Engineer—Danish—Age 30—married, with 8 years of experience in U.S.A. and North Africa as a Highway Engineer and Designer with leading companies. Languages: English, French, Danish, some German and Arabic. Resume on request. PW-2978, Engineering News-Record.

Sanitary Engineer with excellent health and 37 years broad experience in all phases of sanitary engineering will be available after Feb. 1, 1960. Can train personnel and handle projects from inception to finish. PW-2980, Engineering News-Record.

Analyst-Engineer: Experienced estimates, costs, budgets, forecasts on steam generating, chemical-metallurgical, foundry, heavy industrial plant construction and operations; special studies investments, litigation; background financial-securities analysis; present salary, $10,600. PW-3071, Engineering News-Record.

Project Management, Contract Negotiation and Administration, 20 years exp. heavy-construction, U. S. and O. S. PW-3054, Engineering News-Record.

Project Engineer—Power plant, heavy and building construction. Age 32. Have worked 10 years for constructors, contractors and architect-engineers. Ambitious, will accept any location or invest in company. Graduate civil engineer. PW-3074, Engineering News-Record.

Registered Civil Engineer—Registered Land Surveyor, 32, experienced in land development. Location open. PW-3083, Engineering News-Record.

Graduate Civil Engineer—age 27—5 years experience—married. Desires field position with General Contractor. Experience with General Contractor on airport construction. Also experienced in highway construction. PW-3079, Engineering News-Record.

Project Manager or general superintendent, fully experienced in all phases of heavy construction, bridges, cofferdams, caissons, all types pile. Mass rock and earth excavation, throughways, railroad construction. Availability—two weeks. Will relocate. Q. L. (Blackie) Ballard, 5120 Indiana St., South Charleston, West Va. Phone, Poplar 8-1058.

Civil Engineer, MSCE-Hyd., registered, 20 years varied design and field experience in USA, Europe and South America, fluent Spanish, seeks foreign or domestic assignment. PW-3091, Engineering News-Record.

Location and Design Specialist—From Reconnaissance to final plans—Photogrametric computer and/or standard survey methods—Salary or contract—Domestic or foreign—Available Feb. 1-60. PW-3088, Engineering News-Record.

Construction Executive: Top level only. 23 years experience all phases General Contracting, Gen. Supt., Project Eng., Cost Eng. & Purchasing on Highway & Heavy Industrial. Married; well educated with ability to handle complete projects estimate to closing. PW-3089, Engineering News-Record.

General Superintendent, 25 years experience. Industrial, Public, and Commercial buildings. Includes all phases of construction. Estimating, organizing, completions, negotiations for extras etc. Minimum salary $15,000.00. PW-2925, Engineering News-Record.

(Continued on page 104)

THE AUSTIN COMPANY

Offers Growth Opportunities To

STRUCTURAL ENGINEERS

We are looking for capable Graduate Engineers with approximately five years experience who can design and prepare drawings and specifications for complete industrial plants, administration and merchandising buildings, laboratories, radio and television stations and many others.

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P-2831, Engineering News-Record
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P-3033, Engineering News-Record
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SW—2763 ENGINEERING NEWS-RECORD
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P-3095, Engineering News-Record
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(Continued from page 102)

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BO-3031, Engineering News-Record
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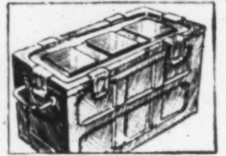

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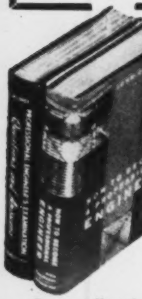

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Editorials

Architects and Engineers

It is unfortunate, in a way, that architects and engineers must dispute their relative responsibilities as in New Jersey right now. But if the current controversy there results in a decision that will prevent recurrence, it may do some good. The case has aroused wide professional interest, and its solution will do the same.

New Jersey is not the first state in which the question of professional jurisdiction has arisen between architects and engineers, and it won't be the last. In previous cases the question has been answered in one of two ways, as reported in last week's issue (ENR Nov. 19, p. 45). Either a state law allows architects and engineers to design any structure that they are technically competent to design, or, in fewer cases, there is an agreed-upon division of projects by type—some for architects only to design; others for engineers; and some for both.

In New Jersey, architects are seeking to establish something like this latter type of code. They are not questioning the competence of the engineer whom they have up on charges; they are challenging his legal right to design the structure involved, a country club in this case. They want structures intended primarily for human use and comfort to be solely within the architect's province. And this, we believe, is the wrong solution to the problem.

There is much more sense in the policy agreed upon by the American Institute of Architects and the National Society of Professional Engineers—a policy that, fortunately, is followed in the majority of states. It stresses technical competence, stating that the architect and the engineer each may accept commissions embracing the other's work, provided he is competent to do it, or provided he will employ those who are. Some states add the stipulation that neither architect nor engineer may use the other's title, which also makes good sense.

The public interest, of course, is in the vital matter of health and safety. State registration laws must be written to prevent incompetents from endangering public health or safety with inadequate construction. The laws must fix the responsibility for adequacy of designs on either a registered architect or a professional engineer.

The professional interest ought to be in permitting freedom for architects and engineers to perform to the limit of their capabilities, to employ or engage one another on projects requiring the special knowledge of both and to join together in architect-engineer combinations and offer a complete professional service in the design of various construction projects.

The controversy in New Jersey pits the local architects against the local engineers, and civil engineering groups nearby in New York and Pennsylvania have expressed willingness to support the New Jersey State Society of Professional Engineers in its defense against the architects' charges. In this instance, the principle involved rates support of all in the construction industry.

The interests of the industry will be best served if engineers and architects are left free to work within the limits of their capabilities.

How to Sell Clean Streams

Public apathy concerning water pollution is something ENR readers can and should help dispel by presenting the hard facts. That was the message of an editorial on this page in our Oct. 29 issue.

On that same day in Detroit, there was one ENR reader trying to dispel the public's apathy, and his message gives good indication of how pollution control should be sold. Edward J. Cleary, chief engineer and executive director of the Ohio River Valley Water Sanitation Commission, was addressing a meeting of the Senate Select Committee on National Water Resources.

He argued that in general we have all the laws we need to prohibit pollution of waters, but laws are not the answer. He stated that although there remain some technical problems, we have the knowledge to abate much pollution now if we'd but apply what we know aggressively. He concluded that it is the lack of willingness, not laws or techniques, that must be overcome in many situations. To gain acceptance of the obligation to clean up the streams is an exercise in social reform, said Mr. Cleary, and social reforms come through public understanding.

Thus we get back to our original declaration that construction people can and should help dispel public apathy. We further suggest that they do so by stressing that water pollution is primarily a social problem on which they can supply hard facts, such as those aired in ENR from time to time, for a public understanding that could lead to reform.

Serving Society for 100 Years

The 100th anniversary of the Cooper Union for the Advancement of Science and Art was quite fittingly celebrated with an academic convocation at the historic New York City school early this month. The institution where Abraham Lincoln made a speech credited with gaining him the Presidential nomination in 1860 has long been a reputable engineering and architectural school with many prominent alumni.

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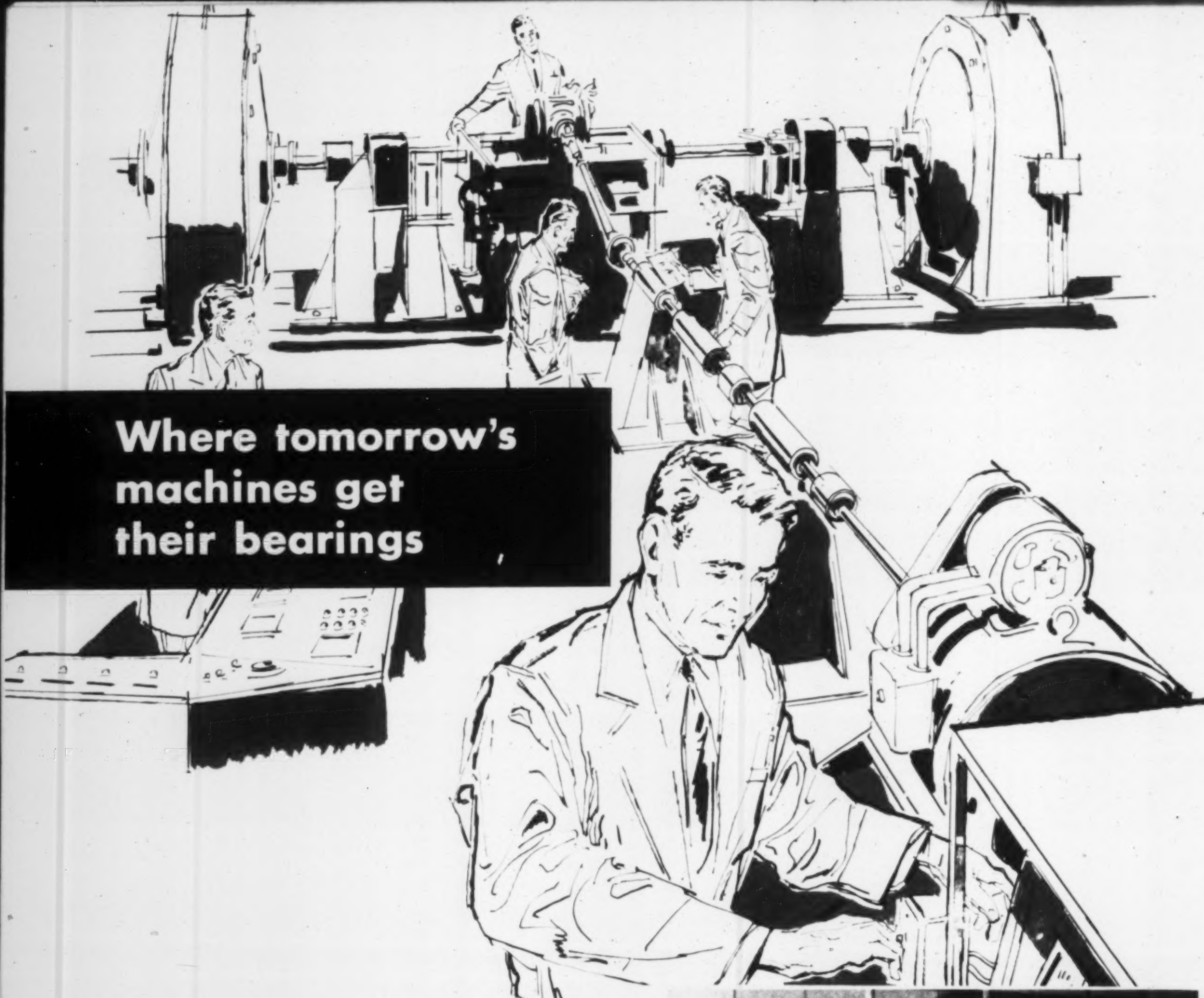

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